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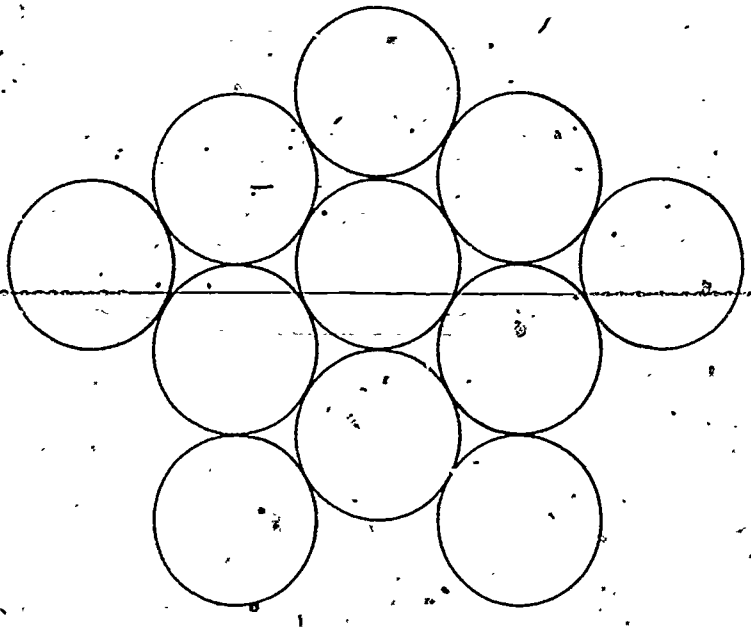
ABSTRACT

The purpose of this guide, the first of 12 volumes, is to help Connecticut's school districts comply with state legislative mandates for instruction in 11 required subject areas. The first volume assists districts in developing local curriculum guides. Each subsequent volume will cover one of the subject areas. After explaining the purpose of the guide, the authors discuss the management of districtwide curriculum planning, the roles of curriculum coordinators and councils and of other school officials, the creation of the district's master schedule for curriculum development, and the articulation of the district's goals and philosophy. Covered next is the framework for curriculum development in the 11 subject areas; the topics include curriculum committees, needs assessments, instructional strategies and materials, implementation, and evaluation. The following section examines curriculum development for special populations, including preschool, adult, handicapped, disadvantaged, and gifted students. The last section suggests time allotments for the subject areas from grades one through twelve. Sixteen appendices list selected resources and state education service centers and provide materials on state educational goals and legislation, testing, curriculum development processes and materials, and formats for curriculum guides. (RW)

A GUIDE TO CURRICULUM DEVELOPMENT:

PURPOSES, PRACTICES AND PROCEDURES



STATE OF CONNECTICUT BOARD OF EDUCATION–1981

Connecticut State Board of Education

This is one of a series of 12 guides to curriculum development prepared under the direction of the Bureau of Curriculum and Staff Development, Division of Elementary and Secondary Education, and published by the Connecticut State Department of Education. The guides may be reproduced in whole or in part as needed.

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Foreword

Connecticut has a strong commitment to equity and excellence in public education. The *Comprehensive Plan for Elementary and Secondary Education, 1980–1985*, embodies that commitment. Now this guide to curriculum development, part of a series, is one of the ways in which the State Board of Education is carrying out that commitment.

This concern for equal educational opportunity, dominant in the 1970s and continuing into the 1980s, has been expressed in a number of notable actions:

The State Supreme Court's historic school finance reform decision (*Horton v. Meskill*, 1978) led to Connecticut's educational equity legislation.

Statutes growing out of this concern for educational equity are Sections 10-262c, 10-262e and 10-16b of the Connecticut General Statutes. Sections 10-262c and 10-262e alter public school funding practices, more than doubling state support over a five-year period and setting a required minimum expenditure per pupil in each school district. Section 10-16b specifies educational programs which must be offered in all districts, with the requirement that they be "planned, ongoing and systematic."

In Connecticut's *Comprehensive Plan for Elementary and Secondary Education, 1980–1985*, submitted to the General Assembly in 1980, the State Board of Education pledged to offer local school districts a greater level of technical assistance and more positive leadership in planning, implementing and evaluating school programs.

The guides have been developed to provide tangible assistance and support to local school districts in complying with the legislative mandate. The titles of the guides correspond to the subjects which Section 10-16b requires all school districts to offer their students: the arts; career education; consumer education; health and safety; language arts, including reading, writing, grammar, speaking and spelling; mathematics; physical education; science; social studies, including but not limited to, citizenship, economics, geography, government and history; and, at least on the secondary level, one or more foreign languages, and vocational education. The goals and objectives set forth in each of the guides relate to the statewide goals endorsed in the *Comprehensive Plan*, namely, motivation to learn, mastery of the basic skills, acquisition of knowledge, competence in life skills and understanding of society's values.

The first volume in the series, *A Guide to Curriculum Development Process: Purposes, Practices and Procedures*, introduces readers to the curriculum development process. It sets forth options for organizing and managing the process of curriculum change and establishes a framework within which subject area curriculum development can take place. This introductory guide also describes the cycle of activities that constitute planned, ongoing and systematic curriculum development. Further, it clarifies the roles of members of the board of education, school administrators, the district curriculum coordinator and members of both the district curriculum council and the subject area curriculum committees in the curriculum development process. Finally, the guide makes explicit the necessary connection between the setting of district-wide philosophy, goal statements and objectives (Connecticut General Statute 10-220b), and the development of planned, ongoing and systematic programs of instruction in each of the 11 mandated subject areas (Connecticut General Statute 10-16b).

The State Board of Education curriculum guides do not mandate either the planning process or the courses of study for any student or any grade level. Each guide is intended solely to assist local district educators in the development of curricula. The publications reflect the thinking and experience of an array of experts who become an important resource to local district educators.

The Connecticut State Board of Education frequently has expressed its conviction that the diversity of the state's public school system is one of its great strengths. Students, schools and communities do not have identical educational needs; imposing a standardized curriculum would impair, not improve, learning opportunities for students.

It is important for local district educators to keep the position of the Board in mind as they use this guide. There is much of value here which can be used to strengthen instructional practices and promote excellence in the curriculum development process. But these ideas can only enhance, not replace, the creativity, talent and commitment of the people in our local school districts who use this guide.

Mark R. Shedd
Commissioner of Education

A Preview of the Guides 1

A Guide to Curriculum Development: Purposes, Practices and Procedures is the first volume in a 12-part series published by the State of Connecticut Board of Education. The process of curriculum development which this introductory booklet describes is, for the most part, applicable to all subject areas.

The guide gives an overview of the planning process: how to organize for the ongoing task of curriculum development and revision; how to manage and coordinate the activities of a number of committees, each of which is developing curriculum for a specific subject area; how to evaluate curricula and their effectiveness with students; and how to insure that the curricula adopted will fit together into a total array of quality programs.

Each of the other 11 guides that make up the series relates the overall curriculum development process to one of the subjects that school districts must offer: the arts; career education, consumer education, health and safety, foreign languages, language arts, mathematics, physical education, science, social studies and vocational education. The individual guides treat the specific aspects of curriculum development which distinguish each subject. They also provide practical help to curriculum planners by suggesting learning outcomes, giving examples of scope and sequence, referring to sources of information and citing exemplary programs that can serve as models.

The guides to curriculum development were prepared under the direction of curriculum specialists in the State Department of Education, each of whom worked with an advisory committee. Committee members included other state agency personnel, educators, scholars, and community leaders.

Publishing a series of guides to curriculum development is one of the ways in which the State Board of Education is discharging its responsibility under Connecticut General Statute 10-16b (see Appendix B). Under this legislation, the State Board is mandated to provide curriculum and other materials that will assist local school boards and district personnel to develop instructional programs so that, by September 1, 1982, the local boards can attest that they are

offering planned, ongoing and systematic programs in each of the 11 subject areas. For many districts, big and small, this is going to mean accelerating their curriculum development and revision activities, and devoting more time and attention to improving the quality of the curricular offerings.

Purposes of this guide

A Guide to Curriculum Development: Purposes, Practices and Procedures offers some insights and suggestions about the process of curriculum development as it applies to the entire spectrum of subject areas. It explores ways to review, revise, and create curricula. The following topics are addressed:

- purposes for developing local school district curriculum guides;
- recommended processes for district-wide and subject area curriculum development;
- needs of special populations and issues related to serving them, and
- suggested time allotments for each subject area in grades one through 12.

Purposes of the subject guides

In contrast to the overview of the curriculum development process provided in this booklet, the 11 subject guides are designed to assist in specific curriculum design for each subject matter area. Each guide includes sections on philosophy, content, resources and evaluation.

The state guides to curriculum development contain numerous models and sample objectives that school district personnel can use as they make their own decisions about what is to be taught in their schools. *The state guides are not designed for use by classroom teachers in planning their lessons nor as curriculum models that schools must adopt.* They have been prepared to serve as resources that local school personnel may use as they revise or develop their own curriculum guides to meet the needs and aspirations of their own district.

Purposes of Local Guides 2

Before exploring the purposes served by developing local curriculum guides, it may be wise to define what a curriculum guide is and how it differs from a course outline. Both are important.

A curriculum guide is a plan for learning. It is a written synopsis of an overall school program for educating students. With a few exceptions—vocational education, for example—a curriculum guide covers all levels of instruction from kindergarten through grade 12. It is written primarily to assist teachers in developing instructional sequences for each grade level or course taught.

The main functions of a curriculum guide are:

- to describe a philosophy or rationale for the educational program;
- to specify goals and objectives for each learning level;
- to establish sequences of learning both within and between grade levels;
- to specify instructional strategies most useful for meeting goals and objectives;
- to identify instructional activities to meet the needs of students with varying abilities and needs, and
- to suggest a variety of methods for evaluating progress towards learning objectives.

These functions are performed by the overall guide to curriculum in any subject area. Specific course outlines for each grade level and course have similar features but are much more detailed in terms of instructional materials, strategies, and activities.

Why develop a local guide?

Even without the existence of written curriculum guides, teachers transmit knowledge to students. Indeed, some districts have no written curriculum guides. Others have guides which are little more than an index of topics which teachers are

expected to cover. Still other districts have guides which present a sophisticated organization of behavioral objectives, learning sequences using specified instructional materials, and criterion-referenced evaluation instruments. Why do districts decide to expend the time and effort to develop detailed curriculum guides and what benefits result?

First, the writing of the guide insures the establishment of an articulated program from kindergarten through grade 12. Research findings indicate that learning takes place best within a program in which teachers are made aware of what students should have learned in the previous grades and are expected to learn in the future. Secondly, the content of the guide can prescribe learning which is rigorous and challenging and which projects high expectations of attainment from students. Thirdly, the elements in the guide provide a basis for continuous monitoring and evaluation of programs and students, thus insuring responsiveness to their needs and to the needs of teachers and the community. Finally, the curriculum development process itself can be a valuable professional development experience. Staff members who participate in designing the curriculum not only learn from the experience but also develop support for the program of instruction and commitment to its implementation. Understandings that develop during interactions among committee members can pave the way for the curriculum's adoption; in fact, some new approaches may find their way into the classroom before the guide is completed.

Finally, local guides can provide documentation that a district does, in fact, have the "planned, ongoing and systematic" programs of instruction that General Statute 10-16b requires. Anyone in the community who is interested in the instructional programs will find in such a guide statements of the district's

- philosophy
- goals and objectives
- scope and sequence of program offerings (K-12) including course offerings
- concepts and skills taught within each program, including instructional objectives, textbooks and copyright dates
- program evaluation plan
- other information related to the community, students and staff

Thus, curriculum guides, while not mandated, can provide tangible evidence of a school district's intent and its efforts to provide quality, planned, ongoing and systematic programs in all the required subject areas.

Organizing for District-wide Planning 3

Effective curriculum development is a dynamic and continuous process in which each district plans, implements and evaluates educational programs in a systematic and logical way. The process is an organized one, usually involving the formulation of a district-wide philosophy and goals, the assessment of needs among and within subject areas, and the establishment of the philosophy, goals and objectives for each subject area.

The curriculum coordinator

An appropriate first step is to designate an individual who will have major responsibility for district-wide curriculum coordination. While it is desirable that curriculum coordination be the person's sole responsibility, this may not always be feasible. Some districts may designate as coordinator a person with other responsibilities, e.g., head teacher, principal or an assistant superintendent. In matters of curriculum development, the coordinator will report all activities to the superintendent who, in turn, will keep the local board members and the community advised.

Curriculum decision making is an enormous responsibility that cannot and should not be shouldered by one individual. An appropriate second step, therefore, is to establish a mechanism for shared decision making. The person in charge of coordination, for example, might ask all administrators and department heads in the district to serve on an advisory committee. If the district is small, the coordinator might invite nearby districts to pool human resources and work on regional curriculum planning or approach the local regional education service center to initiate regional committees. A frequently used model is the formal curriculum council (or steering committee).

The curriculum council

If this structure is adopted, the council should include representatives of several groups: administrators, community members, students and teachers. There is

usually at least one representative from each grade level, from each school building and from each subject area. The representatives chosen usually have indicated a particular interest and expertise in curriculum issues.

The tasks of the council might include:

- formulating a master schedule of curriculum development/review;
- determining priorities;
- suggesting membership for each subject area committee;
- reviewing curriculum plans of subject committees;
- providing for appropriate staff development;
- developing implementation plans;
- allocating curriculum development funds, and
- maintaining contact with the community, teachers and students.

It is vital that each council member assume the responsibility of reporting the council's activities to his/her constituents and clearly communicating her/his constituents' activities and concerns to the council. For example, a teacher representing an elementary school should report the council's activities back to the building principal and staff. Ideally, that teacher representative would chair a building-level curriculum committee comprised of teachers from each grade level. That committee would react to the council's activities as well as initiate its own activities. The establishment of a district-wide curriculum council does not preclude complementary building-level curriculum and program activity. If communication is effective, the district-wide structure should augment and reinforce school-based activity.

Each district will determine what specific roles a curriculum council will play. Its membership should be appointed for a long enough term to insure continuity, with provision for new personnel to be appointed periodically. A curriculum council is an important factor in establishing and coordinating a successful district-wide curriculum development program. (For a sample of a Connecticut district's organization for curriculum development, see Appendix C.)

The master schedule

A necessary action in dealing successfully with curricular change is the creation of a master schedule for curriculum development. This schedule establishes the sequence and time frame within which each subject area curriculum will be developed. If a school district does not have a master schedule, it might follow these steps in planning a schedule:

- conduct an assessment of the district's needs regarding content, strategies and evaluation by querying students, teachers, administrators, parents and community members;
- assess students' learning needs in each subject area by consulting data for the district such as results of standardized and locally developed tests, report cards and other evidence of students' achievements;
- conduct an assessment of resources available in the district and needed for curriculum development and implementation in each subject area;

- review the federal and state regulations with which the curricula must comply, and
- establish a priority listing of curriculum needs and specify a time line for curriculum development in each subject area.

An excellent resource to assist districts in the needs assessment process is the booklet, *Needs Assessment: A Focus for Curriculum Development.*[1]

SUBJECT AREA	Date last evaluated	Date last revised	Grade levels subject is taught in	Instructional materials needed	Guide available	Test scores	Community demands	Student population change	Mainstreaming	Not taught at all
Arts										
Career education										
Consumer education										
Foreign languages										
Health and safety										
Language arts										
Mathematics										
Physical education										
Science										
Social studies										
Vocational education										

Figure 1
Needs Assessment Survey

Districts may wish to utilize a form such as that in Figure 1, page 7, to record and summarize data from individual surveys. After gathering and analyzing its data, a school district should be able to establish an overall master schedule for curriculum development that calls for a periodic review of each subject area. An example of such a schedule is found in Appendix D.

Factors affecting the master schedule

Five factors—schedules for statewide testing, publishers' textbook revisions, the currency of the subject area content, community characteristics and resource allocations—influence the development of the master schedule.

Statewide testing. Results of the Connecticut Assessment of Educational Progress (CAEP) should be considered in the placement of certain subject areas on the schedule. Although these criterion-referenced measures test only a portion of the subject area, the results provide valuable information. Curriculum planners may wish to take advantage of the "local option" and have all of their students at grades 4, 8 and/or 11 tested in order to receive more pertinent data which can be used in review and revision of the curriculum in the subject area. The state's schedule of these assessments is in Appendix E.

Textbook revisions. Consideration should be given to the textbook revision cycle of publishers. Since many operate on a three-year minor revision and a six-year major revision, the school district's master schedule might coincide with that cycle.

Currency of content. The nature of the subject matter itself and how quickly the content becomes outdated should influence the subject's placement in the master schedule. Some subjects involving technology, such as science and vocational education, may need revision more often than other subjects.

Community characteristics. The make-up and aspirations of the community can influence curriculum development. Planners should consider the various cultures represented in their district and how these will be reflected in the curricula. For example, if the community has a large ethnic population, the native language of that population might be a foreign language choice. Planners should consult businesses and industries to determine what vocational skills are in demand. New businesses and industries—local, regional, state, national and international—or changes within older businesses and industries call for curriculum revisions. The expectations of community members for the schools may also demand curriculum change. Community values will influence decisions about school goals and philosophy as well as curriculum content.

Resource allocations. The curriculum development process occurs continuously and involves many resources: human, financial, time and material. The

master schedule is subject to the benefits and limitations of the district's available resources.

The first concern is human resources. Does the district have qualified personnel in each subject area? Are all areas and all levels represented on the council? Have the local teacher and administrative organizations and board of education endorsed this activity? Have persons from the community and from outside the district been asked to participate? Personnel from a regional service center, the state department of education, other school districts, college scholars, independent consultants, or members of local, state and national organizations can be valuable sources of help.

A second vital consideration is the financial resources of the district. Curriculum planners should investigate what outside supplements to the regular budget may be available: grants from public or private sources including local service organizations, clubs, businesses and industries, and assistance from state department of education personnel. Planners—and particularly the curriculum coordinator—must be concerned as to how payment for teachers, consultants, materials, printing and dissemination, field testing, staff development and evaluation will be made. Ways of easing the financial burden include:

- spreading curriculum development over several years, revising only a few areas each year;
- implementing new curriculum over a period of years, purchasing materials for only a few levels at a time;
- collaborating with one or more districts, and sharing the cost of curriculum development;
- contracting with the regional education service centers for some phases of the process, and
- modifying materials developed by other districts to meet local needs.

Whatever choices a district makes, the available financial resources will have an impact on curriculum development.

A third consideration is the time available for curriculum development. Planners of the schedule should consider such factors as:

- the time needed to assess present curriculum, student and district needs and to develop and implement new curricula;
- the time for committee meetings: after school, in-service days, released time, summer workshops, or a combination of these;
- a time schedule for each subject area from evaluation of present curriculum to implementation of a new curriculum.

The master schedule should include the time needed for each step in the curriculum development process for each subject area, including revisions on a regular basis. Time demands should be clearly outlined for review and endorsement by local administrators and boards of education.

Finally, curriculum planners need to know what materials are or can be made available to assist in the curriculum development and implementation

process. These resources include professional books and journals, student materials, state and national organization guidelines, published guides from other schools and states, library holdings, and exhibits at subject area organization meetings. The availability of resources may influence the placement of particular subject areas in the master schedule.

After all the factors affecting the master schedule have been identified and analyzed, an overall curriculum development master schedule can be established and submitted to the superintendent and the board of education for approval. The development of a master schedule not only guarantees a cohesive approach to curriculum development, but it also permits comprehensive financial planning for implementation. The establishment of a master schedule for curriculum development is a crucial step and one which must be taken to insure long-range planning and evaluation in the 11 subject areas.

Setting the philosophy, goals and objectives

Each district should have a broad statement of philosophy and goals available before undertaking any curriculum development. This will foster consistency in all of the subject area curricula. Usually, the board of education approves a statement of philosophy which has been developed by the superintendent and those designated to do so. The board also approves broad educational goals which help to determine the overall curriculum.

Philosophy. The development of a philosophy or rationale is essential to make clear to both school and community the purposes of local education. The district-wide philosophy provides a frame of reference from which to review existing curricula or to develop new ones.

One way to develop a philosophy is to examine a series of belief statements that reflect a variety of philosophical viewpoints. Members of a committee select those statements that seem closest to their own beliefs. When consensus is reached on major belief statements, the committee can use these ideas to write a philosophy which expresses district aspirations and expectations. Examples of district philosophies and belief statements can be found in Appendices F and G, respectively.

Goals. District-wide goals are statements of general direction, purpose or intent; they encompass all disciplines and grade levels. Goals should relate to and flow from the general philosophy of the district.

These broad goals should be consistent both with the district philosophy and the "Statewide Goals for Education" in Connecticut's *Comprehensive Plan for Elementary and Secondary Education* (see Appendix A). If the goal statements are to gain wide acceptance and the approval of the local board of education, the group that writes them should include representatives from all levels of the school and community.

The statewide goals allow each district the latitude to implement them as the community wishes while maintaining some consistent focus across the state as a whole. The goals focus on five major areas: motivation to learn, mastery of the

basic skills, acquisition of knowledge, competence in life skills, and understanding society's values. One resource for assisting in the establishment of consistent local goals is the *Guide to Developing and Establishing Local District Goals* available from the Connecticut State Department of Education.

Objectives. Specific district objectives flow from the broad district goals. These objectives relate directly to the needs of the students. Examples of such district-wide objectives might be:

- to increase the proportion of 9th graders who complete high school to 80 percent of the 9th grade class;
- to increase the average score on the 9th grade mathematics proficiency test by five percent over the 1981 results;
- to decrease the amount of negative student behavior as evidenced by five percent fewer suspensions over the 1981 figure.

Finally, from the district-wide philosophy, goals and objectives can flow the specific subject area philosophies, goals and objectives. The process of determining these for each subject area is discussed in Chapter 4.

Summary

Before district-wide curriculum development begins, the district planners should prepare a statement of district-wide philosophy, goals and objectives that will be approved by the local board of education and will guide the curriculum development process. The organization for district-wide curriculum development includes several distinct steps. Each district must first decide who will be in charge and what the process will include. Based on the findings of a needs assessment, a district-wide curriculum council should develop a master schedule of curriculum development for the district which will provide long-range guidance for planning individual subject area curricula.

4 Organizing for Subject Area Development

The district philosophy, goals and objectives, and the master schedule, once they have been agreed upon, form the framework within which curriculum development in the individual subject areas can proceed. The procedure is similar to that followed for overall curriculum planning.

Subject area curriculum committee

The individual charged with district curriculum responsibility oversees the process. Subject area committees are formed to review present curricula, to recommend revisions and to develop new curricula in those areas that have been identified by the master schedule as needing attention in a particular year. The result of a committee's work is often a new or revised curriculum guide, sometimes for grades K-12, sometimes only for selected grade levels. A crucial aspect of the committee's role is to plan for the implementation and evaluation of the curriculum they have recommended.

Each curriculum committee must organize for the major functions of curriculum development: They are:

planning	implementing
writing	evaluating
training	revising

One of the first tasks of the subject area committee is to recommend how these functions will be accomplished and by whom.

Success in the curriculum development process often depends on how well the committee maintains relationships with other members of the school community and the local community. The committee cannot act in isolation; it needs to develop and implement a plan for exchanging ideas with others. The committee should establish good working relationships with the board of education,

the superintendent, administrators, teachers, parents and other members of the local community. Among teachers, the committee might decide to invite representatives from one or more of the subject areas that depend upon infusion into other subjects, such as career and consumer education. By involving representatives from all interested groups and keeping open the channels of communication, the committee can develop a broad base of support for its suggested program and avoid problems at the implementation stage.

The subject area committees can facilitate communication among all interested parties by:

- reporting their progress regularly to the central curriculum council;
- nominating one or two members who serve on both the subject area committee and the curriculum council;
- requesting joint sessions with other subject area committees, e.g., mathematics with science, for the exchange of ideas, and
- writing bulletins to inform interested groups of progress.

As soon as the subject area committee is established, it will need to consider some of the same factors that influenced the development of the master schedule. These include available resources and their allocation, the nature of the community and of the students themselves, and the overall philosophy and goals of the school district. After consideration, the committee should adopt a plan for its work including target dates for completion of specific tasks.

Each committee will have to base its decisions on its unique needs. For example, there may have to be a schedule for materials development, for pilot testing, or for attending background sessions on new ideas or techniques in the field. The nature of the school district dictates some of the organizational decisions. Established administrative policy or a majority vote of the committee may decide others.

Curriculum development models

There are several models of how the curriculum development process works and what it includes. All are cyclical in nature. Two examples follow.

Model 1

Form the committee.
Conduct a needs assessment.
Formulate statements of philosophy and goals.
Build a curriculum outline.
Write the curriculum guide including objectives.
Pilot test the new curriculum.
Revise the curriculum based on pilot test results.
Instruct teachers in the new curriculum.
Implement the curriculum.
Evaluate the new curriculum.

Model 2

Consider the subject and its goals.
Analyze how well existing materials meet student needs.
Conduct a needs assessment.
Examine the scholarly research relevant to subject area curriculum.
Identify instructional approaches especially appropriate for subject matter and student learning styles.
Identify all readily available instructional materials.
Specify affective, cognitive and psychomotor student objectives.
Select learning experiences.
Identify additional learning resources.
Develop evaluation strategies for program and for students.
Field test new curriculum.
Revise curriculum in response to field testing.
Implement curriculum subject to continuous reevaluation.

These models indicate the kinds of tasks that are part of the curriculum development process. Each subject area committee, with the concurrence of the district curriculum coordinator and the council, must enumerate those tasks which it will undertake. Regardless of the model that is selected, curriculum development is basically a plan for orderly coordination of the elements of time, space, materials, equipment and personnel so that they are responsive to student and community needs.

Four models for curriculum development have been defined in the Association for Supervision and Curriculum Development's 1980 Yearbook, *Considered Action for Curriculum Improvement.* The academic model is governed by the scholarly rules of logic in decision making. The experiential model is a learner-centered approach. The technical model emphasizes the application of technology to the school. The pragmatic model concentrates on responding to local pressures in developing curriculum. These models are not necessarily mutually exclusive. They are ideal models to be adapted to the needs of local districts.

Ralph Tyler, one of the leading exponents of curriculum theory in this century, has asked four questions which are central to developing curriculum.

- What educational purposes should the school seek to attain?
- What educational experiences can be provided that are likely to attain these purposes?
- How can these educational experiences be effectively organized?
- How can we determine whether these purposes are being attained?

These questions should be addressed by every curriculum committee.

Based on the Tyler rationale, Connecticut schools could look at curriculum development in the following ways:

- analyzing—diagnosis of need, review of existing curriculum and study of the current literature;

- planning—formulation of objectives and selection of content and experiences;
- programming—development of curriculum including organization of content and learning experiences;
- implementing—pilot test of curriculum, revision if necessary and final implementation, and
- evaluating—evaluation before piloting, after piloting, and periodic monitoring and evaluation after implementation.

This process is circular, as can be seen in Figure 2, and there are several steps which make up each of these five key elements. For more specific information about the curriculum development process as it applies to particular subjects, the committees should refer to each of the 11 subject area guides.

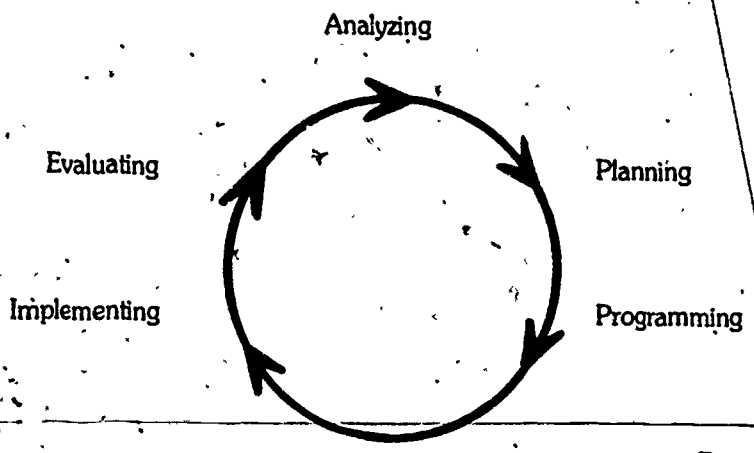


Figure 2
The Curriculum Development Process

The remainder of this chapter discusses briefly the elements of the curriculum development process that are common to all fields. They include needs assessment; resource use; setting the philosophy, goals and objectives; selecting learning experiences; identifying instructional strategies; choosing instructional materials; selecting a format; planning for evaluation, and implementing the curriculum.

Conducting a needs assessment

To determine specific subject area needs, a committee must collect and analyze considerable data about programs, students and the community. A needs assessment involves the clarification of values, the identification of purposes and needs, and the setting of goals to meet those needs. Needs assessment may be defined in two ways.

- Needs assessment is a process of identifying the desired ends (outcomes, products, or results) of a given sequence of curriculum development. It

makes no assumptions or specifications about what type of curriculum ought to be developed to reach the desired and defined ends.
- Needs assessment is a process of determining the gap between desired outcomes and current status.

The committee planning a needs assessment must make three decisions: what data to gather or retrieve, the manner in which those data will be collected, and the analysis that will be made of the data. Once these decisions have been made, the committee can conduct the needs assessment.

Each group of curriculum planners must determine which information is most important for them. Among the items that might be included are:

- belief statements
- formal objectives
- school district policies
- community socioeconomic data
- student achievement data
- samples of student work
- teachers' and students' perceived needs
- school district research reports
- knowledge of school district resources and fiscal capacity
- information about the instructional staff
- surveys of community members' expectations
- information about the "real curriculum" taught in the classrooms
- previous history of curriculum change in the district

Selection of some or all of these sources of information depends on the committee, the time available and the magnitude of the contemplated change.

Next, the committee should select ways to gather the information it seeks. Much can be obtained from school records; some can be collected by surveys of interested parties. The curriculum committee can develop its own methods of assessment which might include:

- a student survey to help teachers understand how students feel about subjects as presently taught;
- a teacher survey to discover what teachers feel about the subjects presently taught;
- an administrator survey which helps identify the strengths and weaknesses of instruction, and
- a parent/community member survey which helps identify community values and expectations.

The surveys can be simple interviews with selected individuals or more elaborate survey instruments sent to many people. (For sample form, see Appendix H.) State Department of Education consultants, regional education service center consultants, or scholars from colleges and universities may assist committees in developing survey instruments.

The analysis of the needs assessment data will assist the committee in identification of desirable changes. A positive result is that it identifies the

strengths of the existing curriculum and serves as a base on which the curriculum committee can build its new program.

Allocating resources

After the needs assessment has been completed, the committee can decide how to allocate the resources available to it. This might include seeking assistance from content specialists and scholars outside the district. These individuals can provide insights into the latest thinking in the field and raise questions to be considered. The committee should also decide how the money that is available will be spent. Other resource decisions will be made about a time schedule, what materials to use, what additional personnel will be needed, and how to maximize committee efficiency.

Adopting a philosophy and setting goals

Working within the framework of the district's philosophy, goals and objectives, each subject committee develops a philosophy, goals, and objectives that are suitable to the subject.

The subject area philosophy is important because it delineates the purpose of instruction in that particular area. It establishes a context for the interaction between teacher and student. It justifies inclusion of the subject within the school curriculum and gives direction to those who must implement the curriculum guide.

Each committee's philosophy should be consistent with the district's and should relate to state and national concerns which touch the subject area. The committee may approach the writing of the philosophy through the use of belief statements, through the discussion of what committee members perceive as important, or through modification of the statement for the district.

After a committee has developed a statement of philosophy, then it can state goals that logically follow from the philosophy statement. These goals will be a key factor in the establishment of the curriculum for the subject area. The goals at each level will relate to the nature of the learners for whom they are written.

Setting objectives[2]

The writing of objectives for the subject areas is a critical step in the curriculum development process. Objectives state in a succinct manner what students should learn.

Many ways to write objectives have been developed. This document does not recommend a specific method. Instead, it identifies the components of the objective-writing process and some ways in which objectives can be developed.

Committee members may want to examine the various methods of writing objectives and determine which seem most appropriate for their specific subject area. However, one caution: committee members should avoid becoming so concerned with the different methods of writing objectives that they become distracted from their primary task. The task is to think of what they want students to learn and to write this down in succinct statements, i.e., in objectives.

The objectives should flow directly from the goals which have been identified. The subject area goals inherently reflect a philosophical position. The objectives are more specific than the goals. For example, two goals for the language arts might be:

1. to provide students with frequent and varied experiences with well written literature that is thought-provoking and often enjoyable;
2. to help pupils develop a personal taste for a broad range of literature which they will continue to pursue after completion of their formal schooling.

Then the subject area committee might state some broad instructional objectives relating to the goal, such as to introduce pupils to their literary heritage, or to develop strategies for reading various literary genres.

Examples of objectives with more specificity are:

- the student knows that a legend is a story or collection of stories handed down orally and popularly regarded as history;
- the student knows that the tall tale builds upon the exploits of a hero through exaggeration of his size, endurance, actions, speech and importance;
- the student knows the satisfaction that people gain from telling tall tales and listening to them (e.g., humor, sense of man matching the physical world in strength, size and power).

Very specific instructional objectives which guide teachers often include activities, strategies and a means of evaluation. There is a cohesive relationship among philosophy, goals and objectives that can be clearly seen in Figure 3. If this figure were extended, there would be a subject area segment for each of the subjects taught in the local district. Maintenance of this relationship makes systematic planning much easier for the curriculum committee.

Approaches to writing objectives

Several ways to arrive at curriculum objectives are described below.

Staff training and objectives formulation. In this approach, staff members participate in workshops on the basic characteristics of objectives and the methods of writing instructional objectives. Two resources for this approach are:

> Ralph F. Mager, *Preparing Instructional Objectives*, second edition. Fearon-Pitman Publishers, Inc., 6 Davis Drive, Belmont, CA 94002.

The Phi Delta Kappa Model for Goals and Objectives. P.O. Box 789, Bloomington, IN 47401 (also a workbook, *A Programmed Course for Writing of Performance Objectives*).

Specific objectives in individual subject areas should be stated in terms of student behavior. If the objectives are too general or stated in terms of what the teacher will do, it is difficult to know what is to be learned and how to evaluate it.

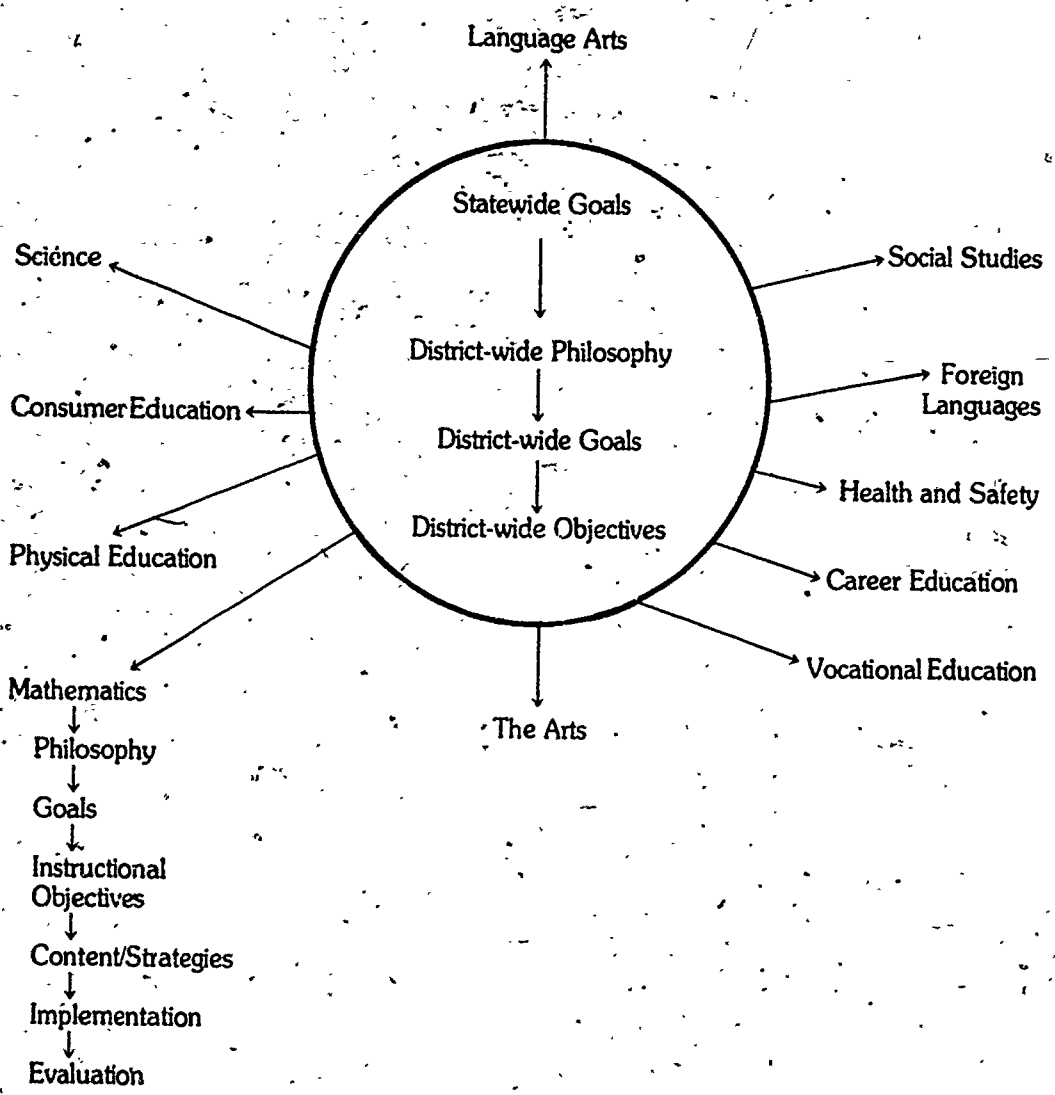


Figure 3
Relationships of Philosophy, Goals, and Objectives

Consider these two objectives:

1. understands the Civil War
2. lists the causes and results of the Civil War

It is obviously easier to evaluate the second objective than the first. Appendix I gives many examples of verbs and how they can be used to construct objectives within the cognitive, affective and psychomotor domains.

Specific instructional objectives should focus on the outcomes of learning experiences rather than on the instruction or the process. After objectives have been written, they can be checked for:

- indication of a desired outcome
- inclusion of an action verb
- statement in terms of pupil performance
- statement in terms of a learning result
- statement of clarity and conciseness
- inclusion of only one outcome

After all objectives for a subject area have been developed, they should be examined to be sure that they include objectives from all appropriate domains.

Some committees may decide that objectives will not be stated as specifically as indicated above. If so, they should consider how teachers and students who are interacting in the instructional process will evaluate the students' performance.

Selection of objectives from catalogs and lists. In this approach, one or more compendiums of objectives are obtained by the school district. Those that pertain most directly and explicitly to the district goals are selected and adapted to meet specific district needs. Some resources for this approach are:

> Instructional Objectives Exchange (IOX), Measurable Objectives Collections, Box 24093, Los Angeles, CA 90024. About 30 different collections, each focusing on a different instructional area.
>
> CTB/McGraw Hill, Department of Programs and Services, Del Monte Research Park, Monterey, CA 93940.
>
> Tri-County Goal Development Project, Commercial-Educational Distributing Services, P.O. Box 8723, Portland, OR 97208. Extensive collections in all major subject areas.

Other sources are listed in the 11 subject area guides.

Ranking of objectives to determine priority or degree of importance. In this approach, lists of objectives are presented to participants (school staff, community representatives, students) who are asked to rank the objectives for pertinence, importance and adequacy with respect to district goals. This approach may be used in conjunction with one of the other approaches. It insures

involvement of participants, acceptability of the objectives and relevance to the district goals. Two resources for this approach are:

Priorities Planning: Judging the Importance of Individual Objectives. Robert E. Stake. Instructional Objectives Exchange (address above).

The Phi Delta Kappa Model: "Individual Rating of the Level of Performance of Current School Programs," P.O. Box 789, Bloomington, IN 47401.

Objectives from the domains

There are three domains of instructional objectives: cognitive, affective and psychomotor. They correspond to the three types of learning, i.e., knowledge/perception, feeling/emotion, and movement proceeding from mental activity. These three interdependent domains should be considered in constructing any subject area curriculum. Each domain has been carefully researched and a taxonomy for classification of objectives has been developed for each. Examples of objectives for each of the three domains appear in Appendix J.

The *cognitive* domain has six basic levels subdivided into other categories. Benjamin S. Bloom and his associates developed a taxonomy, progressing from lowest level to highest: knowledge, comprehension, application, analysis, synthesis and evaluation. Objectives from each of these levels, when appropriate, should appear in subject area curriculum guides.

The *affective* domain has five levels: receiving, responding, valuing, organization, and characterization by a value or value complex. It has been described by Krathwohl and others in the *Taxonomy of Educational Objectives, Handbook II: Affective Domain* (New York: David McKay Company, Inc., 1964). It is a little more difficult to convert the affective taxonomy into measurable objectives, but an attempt should be made to include some at all levels in the subject area curricula.

The *psychomotor* domain has been defined by R.H. Dave[3] as having five levels: imitation, manipulation, precision, articulation and naturalization. These levels are based on the principle of coordination. There can be objectives in many areas from the psychomotor domain.

Selecting learning experiences

Learning experiences focus on what the learner does, rather than on what the teacher teaches. After a subject committee has selected both the general and specific objectives it desires, it can begin the process of selecting learning experiences. The Association for Supervision and Curriculum Development's booklet, *Selecting Learning Experiences: Linking Theory and Practice,* contains useful information. It discusses many different teaching models and the types of learning experiences which each requires. A committee might select models

and types of experiences that seem most appropriate for the local school district, and then examine those that have been chosen using the following guidelines:

- the activity matches the selected objectives;
- the activity is interesting or stimulating;
- the activity is appropriate for the age and background of the learners;
- the activity achieves more than one objective;
- the activity is simple, practical and efficient in its design;
- the activity requires students to use knowledge, values and skills from many levels of the taxonomies;
- the activity is measurable in terms of student performance;
- the activity, if it is not measurable in terms of student performance, can be evaluated in some other way; and
- the activity fits the sequence of learning experiences and objectives.

Each committee may develop other standards that seem more appropriate.

As part of the effort to develop learning experiences, the committee should consider students with special needs. Some activities will be suitable for students with a broad range of abilities and interests. Others may need to be constructed for exceptional students.

Identifying instructional strategies

The selection of learning experiences and of instructional strategies are done concurrently. This allows the committee to explore suggested new methods for implementing the activities that will achieve the instructional objectives and to consider what in-service training will be required.

The traditional methods in many subjects have been lecture and discussion. Today, there are many options. Conceptual teaching structures experiences around activities that help students learn attributes of concepts, the concepts themselves and how to put concepts together to form generalizations. This teaching uses not only lecture or discussion but also inquiry, student experimentation, and projects requiring creativity and involvement. Further, teachers have available a wide assortment of technology to aid them in instruction. Computer simulations, skills drills and problem-solving activities have become part of many curricula. Instructional television often plays a role in expanding student experiences. The committee may wish to consider new teaching techniques that have the potential to improve the students' achievement and generate positive attitudes toward learning.

Choosing instructional materials

Curriculum planners will want to consider materials for both students and teachers. If the district has limited funds for professional resources, it can use resources in regional service centers or college libraries. Student materials include everything from textbooks to videotapes.

Careful evaluation of materials before purchase will insure maximum benefits from the funds available. Textbook publishers will provide materials for examination; nonprint materials, such as films and videotapes, can be previewed. Regional service centers, university libraries or professional meeting displays present other opportunities to evaluate materials before buying. An excellent booklet that enumerates considerations to be made in evaluating library/media materials is *Media Programs: District and School* available from either the American Library Association, 50 East Huron Street, Chicago, IL 60611 or the Association for Educational Communications and Technology, 1201 Sixteenth Street, NW, Washington, DC 20036. The Connecticut guides to curriculum development in the 11 subject areas offer further information on selecting materials to meet specific needs.

Some criteria for selecting instructional materials are:

- match of the material to the instructional objectives;
- attractiveness of the material to students;
- assumptions the material makes about student interests, skills and abilities;
- role of the teacher in using the material;
- suitability of the material for encouraging thinking at several levels;
- suitability of the material for students with varying needs;
- cost of the material, and
- currentness of the material.

Each committee will set its own standards depending on district needs. (For checklists on curriculum materials and media, see Appendices K and L.)

Selecting a format

There are numerous formats for presenting the substance of a curriculum guide. The formats vary from subject area to subject area, from school to school and from state to state. Curriculum developers will want to look at other guides in order to decide what format best fits local needs. Two sample formats appear in Appendix M.

Whatever format the committee selects, it should be easily understood by the teachers, and should help users to see the relationships of goals, objectives, experiences, materials, strategies and evaluation to each other.

Planning for evaluation

An integral part of the curriculum development process is evaluation planning. Evaluation is the process of delineating and collecting useful information for judging learner progress and choosing program alternatives. The curriculum committee develops two types of evaluation, program and student, both of which are important to the process.

Program evaluation utilizes data for making decisions about which curriculum elements should be accepted, changed or eliminated. This type of evaluation occurs at several stages in the curriculum development process:

- at the beginning, when a review of current curriculum and needs is undertaken;
- after the initial curriculum has been designed but before pilot testing;
- after pilot testing but before full-scale implementation, and
- at regular intervals, after implementation, to determine success or need for revision.

Evaluation at each stage depends on district needs and resources. Some districts have persons in charge of evaluation. Others use independent evaluators. In most cases, however, the committee will use a combination of available instruments and their own ideas and judgments for evaluation.

The second function of the curriculum planners is to develop evaluation instruments for the learning sequences. These will insure consistent evaluation of student performance and give some measures that can be used universally throughout the district. This makes it easier for the committee to evaluate the effectiveness of the program in terms of how well students are meeting the program's objectives.

Each committee must decide which methods of evaluation to adopt. Characteristics of an effective program evaluation are that it

- considers student needs;
- assesses individual student progress;
- assesses student achievement at the end of instructional sequences to document what has been learned and to determine readiness for further learning;
- locates strengths and weaknesses in the program;
- demonstrates where changes should occur in order to build a stronger curriculum;
- aids in resource allocation, and
- provides information on the needs, objectives and effectiveness of the program.

Not all characteristics apply to every evaluation instrument.

The committee will be concerned with both formative and summative evaluation. Formative evaluation is that which occurs during the process of instruction. Summative evaluation is that which occurs at the end of a sequence of instruction. Both furnish valuable information.

Some of the instruments that can be used by curriculum planners to measure student performance, opinions and attitudes, and long-term performance are listed below.

Measures of student performance
standardized tests
teacher-made tests

- student grades
- student products, such as compositions, drawings, etc.
- dropout data
- student attendance
- observations of student performance by professionals and parents
- inventories and skills continuums
- observations of the teaching-learning interactions

Measures of opinion and attitude

- parental poll or survey about specific programs
- individual and group interviews with parents, students, teachers and others about student performance and curriculum changes
- attitude surveys of students or teachers on specific programs
- questionnaires used with small random samples of students, teachers, administrators or parents
- rating scales about programs

Measures of long-term performance

- follow-up studies of performance in successive grades
- data on school attendance
- data on college performance of students
- data on career performance of students
- skills test data

Implementing the curriculum

A critical phase in the curriculum development process is the actual implementation of the new program in the classroom. This usually occurs in two steps—the piloting of the new curriculum and the diffusion of the program throughout the district. The degree to which piloting occurs and the rate at which diffusion occurs frequently relate to the size of the school district and the available funds.

If at all possible, a district should pilot a new or revised curriculum. This can involve simply the use of activities and materials for a few weeks in classrooms during the development period in order to test ideas. This often happens in small districts in which only one or two teachers are involved in the curriculum change or where there are only one or two teachers per grade level. In other situations, the total program may be tested for a full year in one or more classrooms per grade level or course. Regardless of how limited or extensive the pilot testing is, it has distinct advantages for the committee because it provides information, before a total commitment is made, which may be used to weed out unsatisfactory materials, inappropriate learning experiences, ineffective instructional techniques or undesirable evaluation methods.

After pilot testing has been completed, the committee evaluates the results, using instruments that elicit feedback from both students and teachers. Often, needs assessment measures can be adapted for this purpose. Usually, some changes in the proposed curriculum are made as a result of this evaluation.

The committee should now determine what kind of professional development is required for the teaching staff prior to the diffusion of the new curriculum throughout the district. Issues to be addressed are:

- how to highlight goals and objectives and to explain how they differ from the current curriculum;
- how to present the new learning experiences to teachers;
- how to review new instructional strategies;
- how to provide any necessary background information needed to teach the content;
- how to help teachers use any difficult materials, and
- how to use the methods of evaluation.

A plan for professional development should be written by the committee and approved by the administration. Guidelines for establishing professional development plans are available from the Bureau of Curriculum and Staff Development at the Connecticut State Department of Education.

The final step for the committee is to insure that the implementation process provides for continuous feedback about the program's success, both on its own merits and in terms of pupil achievement. The committee should set up some means of gathering observations from teachers, students, administrators and parents during the implementation phase. Some monitoring to insure that the curriculum is being implemented as designed is necessary during this process. Moreover, as Susan Loucks and Harold Pratt indicate in an article, in *Educational Leadership*,[4] "paying attention to teachers' concerns as they begin using a new curriculum helps assure that they will use it successfully." A formal mechanism to do just that should be developed. Whatever mechanisms are chosen, they should insure the continuous process of curriculum development.

Summary

Curriculum development in the subject areas requires a large investment of time and energy on the part of committee members. A committee confronts a myriad of tasks: from the initial analysis of needs and resources through the actual implementation and evaluation of the curriculum. The cycle, at this point, begins to repeat itself. Continuing review and revision, reinforced by appropriate professional development experiences, will be less demanding once a formalized process has been established.

Curriculum for Special Populations 5

Each subject area curriculum committee will address the needs of special populations and the impact those needs have on the planned learning experiences in each particular subject. This chapter discusses important factors to consider when planning all curricula for preschool, handicapped, disadvantaged, gifted and talented, and adult students. (For a checklist on meeting students' special needs, see Appendix N.)

EARLY CHILDHOOD EDUCATION

The home-school relationship begins with early childhood education. Healthy attitudes toward school on the part of students tend to reflect the cooperation and trust that teachers develop with parents. If parents are involved in the educational process and decisions about children are made by a parent-teacher team, the children's positive attitudes will grow and be maintained into adulthood.

Teacher and parent expectations should be developmentally appropriate for children in order to enhance their future school success. Curricula for young children, including those in kindergarten, should include:

- real life experiences
- opportunities to listen and to converse
- ways to express themselves creatively and through the arts
- opportunities to observe and to solve problems
- chances to manipulate materials
- experiences that develop self-reliance

Young children need large blocks of time in which to become totally involved in their curricular experiences; they will learn best from teachers who are responsive to their questions.

Program goals

The general outcomes of all learning experiences should be children who

- have a positive self-concept;
- are healthy and physically coordinated;
- are beginning to deal with peers, adults and their own emotions;
- expand their concepts and ideas about the world;
- can use language to communicate with others;
- express themselves in many ways;
- are curious and want to know, and
- learn basic skills through manipulation of materials.

Early childhood curricula should include experiences which will lead to the outcomes described above.

Program planning

Children differ in personalities, in rate of growth, in experiences prior to preschool and in their styles of learning. Programs must allow children to work at different levels for different periods of time at different activities. A flexible program should include a balance in indoor/outdoor, active/quiet and individual/group activities which promote learning and healthy adjustment.

Play has an important role in early childhood education; it is a child's natural way of "learning to learn" through the active exploration and manipulation of objects and materials. The teacher's role is to provide a stimulating learning environment, abundant in time, space, materials and relationships. Through free play, dramatic play and constructive play, each child can enjoy and benefit fully from being three, four and five years old. This builds the foundation for continued learning.

There must be careful planning of the sequences at each level of the preschool and kindergarten experience and careful attention paid to the continuity of experiences between preschool and kindergarten. Without this continuity, much of the strength of the program may be lost.

Experiential curriculum

A successful program for young children must be based on their intellectual, physical, social, emotional and aesthetic needs. The curricula must include experiences which are based on sound educational principles and which reflect the philosophy and goals of the local district.

Young children's concepts are formed through concrete-sensory experiences. They develop slowly from simple to complex, from concrete to abstract, from undifferentiated to differentiated, from discrete to organized and from egocentric to social. Learning experiences should be structured with these sequences in mind.

Language and all its components must be given a high priority. Early language experiences lay the foundation for later reading and writing. The emphasis should be on involvement and interaction, rather than on static use of workbooks.

As they translate curricular goals into activities, writers should consider that children are active, noisy, and egocentric. The children want to feel proud, big and important, but they are beginners. They have their own dream world, are tender, and above all, they differ individually. The activities should stimulate them to learn, while allowing for their individual differences.

Children with special needs

If possible, all children identified as having special needs should be included in the regular classroom learning activities, but materials and equipment should be adapted for individual children. Rooms can be arranged for easy access to materials and activities, and the space kept free from hazards. Curriculum planners should encourage teachers to focus on the children's abilities rather than on their disabilities, allowing them to do as much as they can in their areas of competence and helping them to overcome areas of weakness. Parents should play an important role in planning for children with special needs. Teachers should communicate openly with parents, conveying acceptance of the children and a desire to listen to the parents' concerns, in order to provide the best possible environment for each child.

HANDICAPPED STUDENTS IN REGULAR PROGRAMS

Handicapped students exhibit a variety of problems which interfere with their performing in the same way as nonhandicapped students. These problems include difficulty in processing information, poor memory, inappropriate school behaviors and inadequate language skills. More than one of these conditions may occur in an individual learner. Curriculum planners need to be aware of the general implications of various handicaps in order to plan a variety of options for handicapped students having unusual needs and learning patterns.

The following sections suggest some accommodations in program requirements that will not penalize handicapped students. The suggestions are not exhaustive nor are they designed for all types and degrees of handicapped students. The needs of students with very severe handicaps cannot necessarily be met through adaptation of basic curricula. There are, however, adjustments which can be made in regular curricula from which most handicapped students will benefit. An important point with all of these adjustments is that they should be fair, and that they are viewed as fair by the handicapped students, nonhandicapped students, parents, and teachers.

Differentiated curriculum

Very often, schools have made adjustments for handicapped students by varying the speed of pupil progress in the established curriculum. An alternative to this

approach is the development of a differentiated curriculum in which the program requirements include several options. This can be done in several ways: alternate curriculum objectives, programs with multiple levels, and programs with multiple learning activities. These programs should be operated with sufficient flexibility so that students can move easily among levels and programs.

Instructional strategies

Another way for curriculum planners to accommodate handicapped students is to identify various ways to present subject matter. There should be a broad spectrum of approaches available to the teacher. This allows teachers to match teaching styles to learning styles. Four examples of basic instructional strategies are:

- constructing—the actual manipulation of concrete materials to demonstrate a concept;
- stating—the oral presentation of a concept such as a lecture;
- illustrating—the use of visual aids or pictorial representations such as maps, diagrams, or filmstrips to illustrate a concept, and
- graphically symbolizing—the presentation of a concept in written form as in a textbook.

The teacher may use any of the options, singly or in combination, depending on the child's learning style and level of abstraction.

Children with certain learning problems, for example, would benefit from "constructing" and "illustrating," but these methods might be frustrating for other handicapped students. Recommendations of the school planning and placement team, on a case by case basis, should provide direction in the selection of instructional strategies.

Student performance

Just as students need different strategies in order to learn, they also need different modes through which they can demonstrate mastery of what they have learned. Handicapped students should be asked to demonstrate their knowledge in ways that are adapted to their particular limitations. Curricula should incorporate evaluation options such as the following:

- responses in the form of models, experiments, tape recordings, and figures;
- shorter written assignments or modified assignments such as outlines and lists;
- adjusted time limits for performance, and
- adjusted criteria for passing and/or grades.

Instructional materials

Curriculum planners can choose not only from the vast array of materials available for nonhandicapped students but also from those designed specifically for

handicapped students. All such materials should be carefully evaluated on the basis of the following factors:

- objectives—compatible with the scope and sequence of student and program objectives;
- learning style—demands made on the student compatible with the learning style of the student;
- format—suitability of the specific medium (tapes, workbooks, activity cards, etc.) for the students, and
- reinforcement—provision for appropriate reinforcement and feedback to the student with the desired frequency.

DISADVANTAGED

It is important that teachers hold the same expectation for disadvantaged students as they do for their more fortunate counterparts. Setting these children apart by creating tracking systems in the early grades can only serve to promote a discrepancy between the achievement of these students and that of others. Obviously they should be exposed to a full range of curriculum offerings and should be expected to master the same basic skills and concepts as other children. However, teachers should be aware that, to achieve, these children often need special materials and instructional techniques that are related to their own backgrounds and life styles.

Highly structured programs that emphasize direct instruction and mastery learning are effective for these children. They profit from time on task and immediate feedback. There must be close monitoring of progress through standardized tests, criterion-referenced tests, mastery checklists and specific diagnostic analysis of their work.

The following approaches, if followed closely, will increase the probability that disadvantaged students will achieve mastery in various content areas: motivate students and maintain their attention throughout the allotted instructional time; present material in small discrete units and in a precise, clear manner; secure a high number of active responses from all children; reinforce correct student responses immediately; teach essentials; provide for adequate practice, teach to mastery; choose terms that are familiar to students and teach subskills that are important for more complex tasks.

While many of these suggestions are valid for all children, they are particularly important for children from disadvantaged backgrounds.

GIFTED AND TALENTED

Children with extraordinary learning ability and outstanding talent in the creative arts exhibit a number of characteristics which indicate that they learn at a quicker rate, see relationships among seemingly diverse ideas and generate many ideas for a specific stimulus. Particular gifted and talented individuals may not possess all of these characteristics and may indeed act in such a way to conceal traits, especially as they progress through school. If the school staff, however,

allows and encourages individuals to exhibit their natural traits, certain characteristics will become more evident.

Although many professional educators advocate special programs for the gifted and talented, a variety of choices for these students can be provided within the subject area curricula. Curriculum developers can allow for adjustments and choices that will assist in meeting the needs of gifted and talented students.

Differentiated instruction

Two areas in which curriculum planners can consider modifications for the gifted and talented are curriculum content and instructional strategies. For example, an intellectually gifted pupil with high motivation in a specific content area should be given an opportunity to use materials providing knowledge and information that is identifiably different from that in the general curriculum. A teacher responsible for a specific content area should use instructional strategies associated with the higher mental processes such as analysis, synthesis and evaluation.

Differentiated curriculum. Content areas and learning experiences can be modified to meet the needs of the gifted and talented by enriching the regular program, accelerating content or grade level, specially designing a program, and in other ways. Before planning a differentiated curriculum, developers first must identify the particular gifts and talents of the students in the district.

Differentiated instructional strategies. The professional staff should have opportunities to attend in-service training on the instructional strategies most suitable for each targeted group. For example, the needs of those with high intellectual creativity can be addressed through the strategies of fluency, flexibility, originality and elaboration.[5] Each subject area curriculum development committee should be sure that teachers are familiar with the various clusters of instructional strategies that are most appropriate for different types of gifted and talented students.

Structural flexibility

Strict adherence to regular scheduling and content may impede rather than facilitate learning for gifted and talented students. Some program flexibility is important. Intellectually gifted pupils learn at a faster pace. The curriculum planners should indicate how activities can be compressed for these students in order to allow time for them to pursue specific aptitude and intense interest areas (e.g., chronobiology, general semantics). The provision of released time so that such students can work with an expert from the community but outside of the school should be considered. This allows students to pursue internships, to work with creative artists, and to explore new dimensions that could not be done within the confines of the school building.

Instructional materials

A number of curriculum guides and schematic approaches to elementary and secondary curricula for gifted and talented are in use throughout the state. They have been developed in order to serve these students through various means, including differentiated programs. The State Department of Education has a number of publications that relate directly to the needs of the gifted and talented. Curriculum planners may wish to consult the following:

- CONN-CEPT I — *Practical Suggestions for Gifted and Talented Program Development*
- CONN-CEPT II — *Differentiated Curriculum for the Gifted and Talented in Science and Mathematics*
- CONN-CEPT III — *Once Upon a Building*—Creating a Differentiated Learning Environment for Elementary School Pupils
- CONN-CEPT IV — *Differentiated Programming in the Creative Arts*
- CONN-CEPT VII — *Task Force Report on Curriculum*
- CONN-CEPT X — *Differentiated Curriculum in Marine Studies and Computer Sciences for the Gifted and Talented*

ADULT EDUCATION

When curriculum developers plan learning activities for adults, they should consider the motivations as well as the learning expectations and abilities of adult students. Adults return to class for that which they feel they are lacking. They have decided to acquire new knowledge or skills or to update themselves in subjects previously studied. Generally, they undertake their learning tasks with specific goals in mind. If the educational program does not enable them to progress toward their personal goals, they may decide that the commitment of time, energy or money is unwarranted, and they will drop out.

The challenge to teachers and curriculum developers is to design learning tasks for adults that help them learn what they want or need and enable them to see progress towards their goals. These tasks should be undertaken in an environment that recognizes the adulthood of the students.

Instructional materials

Instructional materials should be geared in tone and content to reflect adult interests and concerns. They also should be sensitive to the fact that an adult brings an accumulation of life experiences which may enhance or impede learning. Fear of failure and embarrassment at lack of achievement are often burdens which an adult brings to the learning scene the second time around. While adults may need to acquire the fundamentals of mathematics, English, history or science, they do not need to learn them in a context that mirrors the

world of youngsters. Many publishing houses now sell materials designed for the adult learner so that it is no longer justifiable to recycle texts or workbooks from children's classes. Teacher-developed materials can reflect even more specifically the environment and circumstances of adult students.

Instructional strategies

Research has shown that, despite the old adage about not being able to teach old dogs new tricks, adults can increase their knowledge even into old age. As people grow older, however, physiological changes do occur which affect the speed and circumstances under which they learn. Eyesight and hearing may be less keen than in youth. Oral presentations will be understood best, for example, when enunciated in a voice that is neither too high or too low in register.

In areas of learning where motor coordination is required, the program should adjust for the fact that as people age their reflexes slow. Response rates from adults may not be as quick as one expects from young people. Frequently, however, adults compensate for decreasing motor skill by giving patient attention to the task or by drawing upon experience to find another way to solve a problem. Generally, too, adults place greater value upon completing an activity accurately rather than rapidly.

This point of accuracy makes particular sense when one recalls that adults usually come to a learning situation with a specific goal in mind. Therefore, any curriculum prepared for adult students should be flexible enough to allow for:

- opportunity for the adult to state his/her reasons for learning a new knowledge or skill;
- the inclusion, on either a classwide or individual-study basis, of activities or projects to help each student achieve his/her particular goal, and
- frequent opportunities for the student to connect the new skill or information with what is important in his/her life.

For those adult students who are fearful of returning to a formal learning atmosphere, the relevance of the new skill to their adult lives is both a comforting and a motivating element.

To succeed with adults, however, teachers—especially those accustomed primarily to teaching children—may need some orientation. There is less homogeneity in adult classes and adult students can pose special challenges to teachers. The students' experience and expertise in certain areas may exceed the teacher's knowledge and the questions adults raise may be less easily answered than the queries of children. A curriculum plan for adult programs, therefore, should include an in-service training component.

Suggested Time Allotments 6

In order to have a planned, ongoing and systematic curriculum, a school district needs to set some guidelines for the amount of time that will be devoted to each subject taught. Moreover, research has repeatedly shown the strong correlation between time on task and school achievement.

This chapter suggests some time ranges, recognizing that school districts must develop their own schedules in order to meet the needs of their students. The suggested ranges are given by subject area and are broken down by grades 1–3, 4–5–(6)*, *(6)–7–8, and 9–12. Although the listing presents discrete units of time for each subject area, the time allotments are not required and the listing does not preclude districts from offering courses of instruction in an integrated and correlated manner, so that learning takes place in several subject areas at the same time, e.g., consumer education and social studies, dance and physical education, or science and mathematics. If, however, a district chooses to offer a "core" course of instruction, the time devoted to the subject offered should be identifiable.

Public Act 81-78, An Act Concerning the Lengthening of the School Day, provides that school districts beginning in the 1982–83 school year must offer at least four hours of actual school work per day, and at least 900 hours of actual school work per school year. While the length of actual class time may vary, only periods of time devoted to instruction count in meeting the minimum requirements of the law. Therefore, on the average, there would be a five-hour instructional day or 1,500 instructional minutes available each week. In offering the ranges below, an attempt was made to set the totals of the lower end of the range at no more than 1,500 minutes per week (25 hours per week). Certainly, to provide an instructional program with the breadth and quality called for in each of the 11 guides to curriculum development, districts need to allot more than the minimum number of minutes suggested by these time ranges. In order to increase the amount of time allotted to any given subject, districts may opt not to offer instruction in one or more of the optional areas.

Ranges for Instructional Time#

	Minutes Per Week	
	Grades 1–3	Grades 4–5–(6)*
The Arts		
Art, Visual	60– 100	60–100
**Δ Dance	30– 60	40– 80
**Δ Drama	30– 60	40– 80
Music	60– 100	60–100
** Career Education	60– 90	90–225
** Consumer Education	30– 60	45–120
Δ Foreign Languages	25– 75	100–125
** Health and Safety	60– 90	80–225
Language Arts	900–1,200	645–900
Mathematics	225– 300	300–375
Physical Education	60– 100	90–150
Science	75– 150	135–200
Social Studies	75– 150	120–200

The suggested ranges are the result of analysis of information including actual practice, advisory committee discussion, recommendations of professional organizations and state department educational consultants and survey data.

* The parenthesis around the number six (6) indicates that this grade may be in either the elementary or middle school, depending upon the district.

** Instruction in these areas would be infused into those areas without the asterisks.

Δ Optional.

In grades (6)*–7–12, students tend to follow a series of course offerings which meets local requirements and is tailored to individual interests and aspirations. During any given school year, students will opt to take fewer than all subject areas listed. Therefore, the only suggested time allotments given are for the minimum number of periods necessary for effective instruction in the particular subject area.

Ranges for Instructional Time*

	Periods Per Week	
	Grades (6)*–7–8	Grades 9–12
The Arts		
Art, Visual	5†	5
Dance	3	3
Drama	3	3
Music	3	5
Career Education	3	3
Consumer Education	3	3
Foreign Languages	5	5
Health and Safety	5†	5†
Language Arts	5	5
Mathematics	5	5
Physical Education	3	5
Science (with laboratory)	7	7
Social Studies	5	5
Vocational Education (core)		
Business and Office (including laboratory)	–	15
Consumer Home Economics	3	3
Cooperative Work/ Diversified Occupations (including laboratory)	–	15
Industrial Arts	3	5
Vocational Guidance	1	1
Vocational Education (other)	–	5–15

The suggested ranges are the result of analysis of information including actual practice, advisory committee discussion, recommendations of professional organizations and state department educational consultants and survey data.

* The parenthesis around the number six (6) indicates that this grade may be in either the elementary or middle school, depending upon the district.

† For half a school year.

Appendix A
Statewide Goals For Education

From Connecticut's *Comprehensive Plan for Elementary and Secondary Education*, 1980–85

GOAL ONE

Motivation to Learn

To realize their potential to learn, students must be highly motivated.

Therefore:

Connecticut public school students will develop strong motivation by responding to the high expectations of their parents, teachers and school administrators; by understanding and striving to fulfill personal aspirations, and by developing the positive feelings of self worth which contribute to responsible behavior and personal growth, health and safety.

GOAL TWO

Mastery of the Basic Skills

Proficiency in the basic skills is essential for acquiring knowledge and for success in our society.

Therefore:

Connecticut public school students will, to their full potential, learn to communicate effectively in speech and writing; read with understanding; acquire knowledge of and ability in mathematics, and strengthen decision-making skills.

GOAL THREE

Acquisition of Knowledge

Acquiring knowledge leads to fuller realization of individual potential and contributes to responsible citizenship.

Appendix A (continued)

Therefore:

Connecticut public school students will acquire the knowledge of science, mathematics, social studies, the arts, literature and languages which leads to an understanding and appreciation of the values and the intellectual and artistic achievements of their culture and other cultures, and will take full advantage of opportunities to explore, develop and express their own uniqueness and creativity.

GOAL FOUR

Competence in Life Skills

Students are challenged to function successfully in multiple roles: as citizens, family members, parents, producers and consumers.

Therefore:

Connecticut public school students who complete secondary level studies will have the ability to make informed career choices; understand the responsibilities of family membership and parenthood; be prepared to undertake the responsibilities of citizenship in their communities, in the state, in the nation and in the world; and have the skills, knowledge and competence required for success in meaningful employment, or be qualified to enter postsecondary education.

GOAL FIVE

Understanding Society's Values

To be responsible citizens and contribute to positive change, students must understand and respect the underlying values of this society.

Therefore:

Connecticut public school students will appreciate diversity and understand the inherent strengths in a pluralistic society, they will understand and respond to the vital need for order under law; they will acquire the knowledge necessary to live in harmony with the environment, and actively practice conservation of natural resources, and they will respect the humanity they share with other people.

Appendix B
Legislation

The series of guides to curriculum development published in 1981 by the State of Connecticut Board of Education are consistent with the provisions of Sections 10-4 and 10-16b (or P.A. 79-128) of the Connecticut General Statutes.

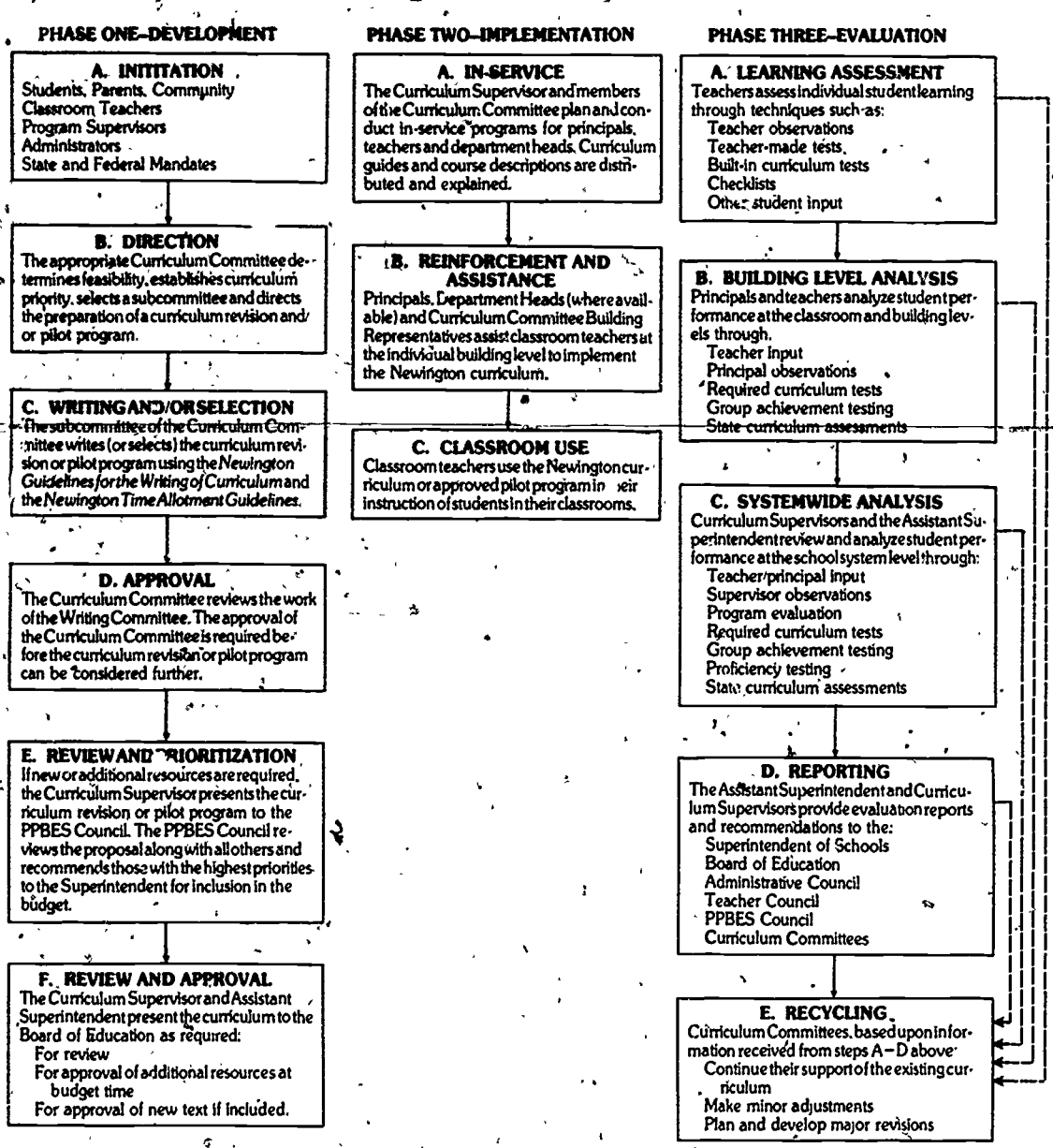
Section 10-4. Duties of Board. (a) . . . shall prepare such courses of study and publish such curriculum guides . . . as it determines are necessary to assist school districts to carry out the duties prescribed by law . . . .

Section 10-16b. Prescribed courses of study. (a) In the public schools the program of instruction offered shall include at least the following subject matter, as taught by legally qualified teachers, the arts; career education; consumer education; health and safety; language arts, including reading, writing, grammar, speaking and spelling; mathematics; physical education; science; social studies, including, but not limited to, citizenship, economics, geography, government and history; and in addition, on at least the secondary level, one or more foreign languages and vocational education.

(b) Each local and regional board of education shall on September 1, 1982, and annually thereafter at such time and in such manner as the commissioner of education shall request, attest to the state board of education that such local or regional board of education offers at least the program of instruction required pursuant to this section, and that such program of instruction is planned, ongoing and systematic.

(c) The state board of education shall make available curriculum materials and such other materials as may assist local and regional boards of education in developing instructional programs pursuant to this section.

Appendix C
Systemwide Organization For Curriculum Development



From Newington Public Schools

Appendix D
Master Schedule For Curriculum Development
(Sample—a partial listing)

The following is a hypothetical schedule for curriculum development. Note that the cycle presented calls for review, revision and writing, piloting, implementation and evaluation phases of each of the subject areas. Moreover, staff training is presented as an integral aspect of the piloting and implementation phases.

Subject	Latest Evaluation/ Review	80–81	81–82	82–83	83–84	84–85	85–86
Mathematics	1979–80					Review/Revise K–12	Pilot Staff Training K–12
Language Arts	1975–76 K–3	K–3 Review/Revise	K–3 Pilot Staff Training	K–3 Implement Staff Training	K–3 Implement Staff Training	K–3 Evaluate	K–3 Review/Revise
	1975–76 4–6	4–6 Review	4–6 Revise	4–6 Pilot/ Implement Staff Training	4–6 Implement Staff Training	4–6 Evaluate	4–6 Review/Revise
	1976–77 7–12		7–12 Review/Revise	7–12 Pilot Staff Training	7–12 Implement Staff Training	7–12 Implement Staff Training	7–12 Evaluate
Foreign Languages	1977–78 All 7–12 languages except the major offering			7–12 Review/Revise	7–12 Pilot/ Implement Staff Training	7–12 Implement Staff Training	7–12 Implement Staff Training
	1978–79 4–12 The major language offering				4–12 Review/Revise	4–12 Pilot Staff Training	4–12 Implement Staff Training
Health and Safety	Not done in past 10 years	K–12 Review and write curriculum	K–12 Pilot Staff Training	K–12 Implement Staff Training	K–12 Implement Staff Training	K–12 Implement Staff Training	K–12 Evaluate

Appendix E
Connecticut Assessment of Education Progress (CAEP):
Recommended Testing Schedule

		COMPLETED				PLANNED OR PROPOSED ASSESSMENTS					
		77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88
THREE GRADE LEVELS	Career Education	I				II					III	
	Citizenship/ Social Studies	I					II					III
	Reading		III					IV				
	Mathematics			II					III			
	Science			II						III		
ONE GRADE LEVEL	Art/Music				I					II		
	Vocational Education						I					II
	Consumer Education							I				
	Health/ Safety								I			
	Physical Education									I		
	Foreign Language										I	
OTHER	School Climate					I					II	
	Gallup Poll						I					II

LEGEND: Roman numerals indicate the number of times an assessment has been conducted by the State Department of Education. For example, Career Education had its first (I) statewide assessment in 1977-1978, its second (II) assessment in 1981-1982, etc.
NOTE: This schedule is subject to availability of funds.

A Five Year Cycle For All Assessments

88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-0.	00-01
			IV					V				
			IV					V				
			VI						VII			
		IV				V				VI		
		IV				V					VI	
		III				IV					V	
			III					IV				
	II				III				IV			
	II				III				IV			
	II				III					IV		
			II					III				
			III					IV				
			III						IV			

Appendix F
Philosophy
(Sample)

The public school is one of the most important forces in America devoted to the total development of human potential. An efficient and effective learning program involving the transmission and utilization of knowledge, skills and attitudes will enable students to develop their potentials as individuals and to make a useful contribution as members of society.

To accept a realistic evaluation of themselves, their ambitions and their environment, students are encouraged and directed to study and research independently, think logically and communicate ideas meaningfully. Students are guided in their interpretation of the modern world through an appreciation of their democratic heritage so they may be discerning in their choice of competent leadership and become intelligent participants in their communities and vocations. Moral, ethical and aesthetic values are exemplified as indispensable guides to richer and more rewarding living. Fundamental to this process is the conviction that every student must be regarded as an individual worthy of our sincere interest, respect and best efforts.

PRACTICES AND PROCEDURES TO ATTAIN OUR OBJECTIVES:

1. The selection and retention of a well-trained, well-informed professional faculty and staff of paraprofessional and lay personnel who are aware of students' needs and problems, and who are themselves motivated toward continuing professional growth.

2. A required program of study and school-directed experiences for all students developed through school and community participation which properly emphasizes the fundamental and broader aspects of a sound education.

3. The provision of varying levels of challenge in basic subject matter fields so that students may be motivated to work successfully at the achievement level of their ability.

4. A flexible curriculum from Kindergarten through Grade 12, which will provide each student with a sound education, based upon a recognition of his individual abilities, needs and goals.

5. A total guidance program for all students at all levels which through counseling and testing helps our students adjust to their environment, develop their potentials and utilize their interests and abilities in relation to their personal needs and goals.

   In addition, efforts are made to assist students in adjusting to problems of a physical, emotional or social nature, to make career considerations at the appropriate level, and to select programs of studies and activities which will lead to the ultimate realization of career choices.

6. The preparation, development and encouragement of all students to become independent self-directed learners participating in independent study and research, utilizing all communications media, with emphasis on stimulation and guidance of self-paced learning, this all leading to the emergence of individual citizens who are capable of thinking critically, making sound judgments, and becoming productive and effective members of a democratic society.

7. A program of enriching experiences, both co-curricular and extra-curricular, to aid the students in personal, physical, mental and social development, as well as to guide them in the wise use of leisure time.

8. Since the school reflects the needs, values, strengths, and aspirations of the community, it follows that the school and the home should work together to further develop those personal characteristics which will lead to a better individual and community life for all its citizens. Therefore, a continuing dialogue between community, home, and school should be maintained to the end that all of the children of all of the people will be provided the opportunity to develop, thoughtfully assess, and appropriately adjust to, the needs of a changing society.

From Naugatuck Public Schools

Appendix G
Belief Statements
(Samplee)

Students
- Students are individuals with unique characteristics and interests.
- Students are individuals who can be taught to function in the ways society determines.

Learning
- Students learn best when content is relevant to their own lives.
- Students learn best in a structured environment that models elements of the democratic process.

Teaching roles
- The primary role of classroom teachers is to help students learn.
- Student learning may be affected more by what teachers do than by what they say.

Grouping
- Homogeneous groups are more effective for instruction than heterogeneous groups.
- Heterogeneous groups provide opportunities for students to learn with students of varying abilities.

Educational program
- All special programs should incorporate educational objectives that complement the total school program.
- Evaluating and changing programs to meet students' needs and interests more effectively should be a continuous process.

Appendix H
Needs Assessment Instruments
(Sample)

I. Student surveys. The questions below are typical of those which could be asked of students as part of a needs assessment. Wordings can be changed to adapt the questions for any subject area and any grade level. Primary grade students can be read questions and asked to circle a number that corresponds to the response. Or, a set of statements can be made up which achieve the same results and students can mark faces to show if they agree or disagree with the statement. These sample questions do not constitute a survey as such. They are presented as items which a committee might use.

1. In this class, we most often do these things: (specify subject area) (check 3)

___read books	___look at films and filmstrips
___listen to the teacher	___talk about the book
___perform experiments	___listen to records
___recite orally	___make maps (graphs, charts, pictures)
___go on field trips	___answer questions
___work in the library	___construct things
___take tests	___do homework

2. In this class, I like to: (check 3)

___read books	___look at films and filmstrips
___listen to the teacher	___talk about the book
___perform experiments	___listen to records
___recite orally	___make maps (graphs, charts, pictures)
___go on field trips	___answer questions
___work in the library	___construct things
___take tests	___do homework

3. To do well in this class and get a good grade, I have to: (check 3)

___be quiet in class	___work with others
___answer questions	___do well on tests
___listen to the teacher	___develop good projects
___ask good questions	___suggest questions and ideas

Appendix H (continued)

___do my homework ___understand the book
___work in the library ___follow the teacher's directions.
___perform experiments ___complete reports

4. I find the following difficult in this class: (check up to 3)
___answering questions ___taking tests
___participating in discussion ___working out projects
___working alone ___writing reports
___reading the textbook ___working with others
___making maps (or other visuals) ___thinking of good ideas

5. In this class, I like to work this way best: (check only 1)
___alone ___in a pair ___as a small group ___as a whole class

6. I talk to my parents about this class: (check only 1)
___not at all ___about once a month ___about once a week
___almost every day

7. If I could make one suggestion to my teacher about how to do things differently, I would say:

_____

8. If I could choose one area to study in this subject, it would be:

_____

9. The materials we use in this class are:
___excellent ___very good ___good ___fair ___poor

II. Teacher surveys. The rating scale below could be used to check almost any program. There are also some questions that could be used to determine what teachers perceive about the present program and what the future might be. Teacher surveys can include be.f statements with which teachers may agree or disagree, in whole or in part.

A. Rating Scale

The following questions have a 5-point scale. Put a check at the point that reflects your opinion about the present _____ curriculum.

1. Teacher interest in materials
   Low ___/___/___/___/___ High
2. Student interest in materials
   Low ___/___/___/___/___ High
3. Student participation in class
   Limited ___/___/___/___/___ Very active
4. Class atmosphere
   Quiet ___/___/___/___/___ Noisy
5. Program content
   Inappropriate ___/___/___/___/___ Very appropriate
6. Content includes knowledge at all levels
   Only low ___/___/___/___/___ All levels
7. Content includes values
   Not at all ___/___/___/___/___ Many levels

8. Skills treatment	Unclear	Very clear
9. Kinds of questions	Low level	All levels
10. Who asks questions	Mostly teacher	Mostly students
11. Curriculum decision-maker	Teacher	Students
12. Question responses	Short	Long
13. Student sense of purpose	Hazy	Defined
14. Teacher's guide	Not useful	Very useful
15. Difficulty of materials	Too difficult	Too easy
16. Reading level	Too high	Too low
17. Supplementary materials	None	Abundant
18. Student involvement	None	A great deal
19. Teacher's role	Authority	Participant
20. Overall program	Ineffective	Very effective

B. Possible questions. Each of these to be made specific to the subject area.

1. Which three of the following do you think are important areas for this subject in this district? Rank them from 1 to 3. (List a variety of areas from the subject)
2. Which of the following techniques do you think are most important? Check 2.

___lecture	___games and simulations
___discussion	___inquiry
___questions	___conceptual development
___research	___independent study
___quizzes and tests	___valuing
___case studies	___creating a model or product
___experiments	___community projects
___drill	___other (identify) _____

3. What do you think is the major strength of this subject at your grade level?

_____

4. What do you think is the major weakness of this subject at your grade level?

_____

Appendix H (continued)

5. What kinds of materials do you use most often to teach this subject?

___books	___maps and globes
___films	___models
___filmstrips	___charts and diagrams
___laboratory equipment	___records and tapes
___chalkboard	___television
___games and simulations	___computers
___real objects	___other (specify) _____

6. If you were to make one change in this program at this grade level, what would it be?

_____

7. How well do you feel this program meets the needs of special students?
___not at all ___ rarely ___sometimes ___often ___very well
8. What type of in-service would be most useful to you in this subject area?

_____

9. What kinds of equipment do you need to carry out his program?

_____

10. What kind of administrative support would be most helpful?

_____

III. Administrator surveys. These are some questions which might be used in a needs assessment, adjusted for the particular subject area.

1. Grade levels at your school _____
2. Organizational patterns at your school (self-contained, etc.)

_____

3. Which of the following do you think is most important in this subject area? Rank order these from 1 to 3.
(repeat the items from question 1 of the teacher survey)
4. Which of the following instructional techniques do you think is most important? Choose 2.
(repeat items from question 2 of the teacher survey)
5. Identify two strengths of this subject area in your school.

1. _____

2. _____

6. Identify two weaknesses of this subject area in your school.

1. _____

2. _____

7. On standardized tests in this area, how do the students in your school perform at each grade level?

_____

8. What percentage of your students have special needs?

_____ What types of needs (bilingual, handicapped, etc.)

_____

9. What one change would you recommend in this program area?

_____

10. What in-service needs does your school have?

_____

11. In what ways could this curriculum be communicated better to the parents?

_____

IV. **Parent surveys.** Some of these questions might be used with parents. The questions that are used in the community, however, are heavily influenced by the nature of the district.

1. What do you perceive as the major goals of education in our schools?

_____

_____

2. What do you see as the strengths of this school system?

_____

3. What do you see as the weaknesses of this school system?

_____

4. In _____, what do you most like about our program?

_____

5. In _____, what do you least like about our program?

_____

6. Would you be willing to work with a curriculum committee?

___Yes ___No If yes, in which area? _____

7. Following are a series of general statements about school which are being considered for goals in this district. Examine them carefully, and then rank them in order from the one you like best (number 1) to the one you like least (number 10). (Choose statement appropriate for your district.) [School district must make up its own statements.]

Appendix I
Writing Objectives

Cognitive, Affective, And Psychomotor Domains

Table I: Examples of General Instructional Objectives and Behavioral Terms for the Cognitive Domain of the Taxonomy*

Instructional Objectives	Behavioral Terms for Stating Learning Outcomes
Knows common terms Knows specific facts Knows methods and procedures Knows basic concepts Knows principles	Defines, describes, identifies, labels, lists, matches, names, outlines, reproduces, selects, states
Understands facts and principles Interprets verbal material Interprets charts and graphs Translates verbal materials into mathematical formulas Estimates future consequences implied in data	Converts, defends, distinguishes, estimates, explains, extends, generalizes, gives examples, infers, paraphrases, predicts, rewrites, summarizes
Applies concepts and principles to new situations Applies laws and theories to practical situations Solves mathematical problems Constructs graphs and charts Demonstrates correct usage of a method or procedure	Changes, computes, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses
Recognizes unstated assumptions Recognizes logical fallacies in reasoning Distinguishes between facts and inferences Analyzes the organizational structure of a work (art, music, literature)	Breaks down, diagrams, differentiates, distinguishes, identifies, illustrates, infers, outlines, points out, relates, selects, separates, subdivides

Writes a well organized theme Gives a well organized speech Writes a creative short story (or poem, or musical composition) Proposes a plan for an experiment Integrates learning from different areas into a plan for solving a problem Formulates a new scheme for classifying objects (or events, or ideas)	Categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes
Judges the logical consistency of written material Judges the adequacy with which conclusions are supported by data Judges the value of a work (art, music, writing) by use of internal criteria Judges the value of a work (art, music, writing) by external standards of excellence	Appraises, compares, concludes, contrasts, criticizes, describes, discriminates, explains, justifies, interprets, relates, summarizes, reports

*Adapted from Norman E. Gronlund, *Stating Behavioral Objectives for Classroom Instruction* (New York: The Macmillan Company, 1970), p. 21.

Table II. Examples of General Instructional Objectives and Behavioral Terms for the Affective Domain of the Taxonomy*

Instructional Objectives	Behavioral Terms for Stating Learning Outcomes
Listens attentively Shows awareness of the importance of learning Shows sensitivity to human needs and social problems Accepts differences of race and culture	Asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, replies, uses
Completes assigned homework Obeys school rules Participates in class discussions Completes laboratory work Volunteers for special tasks Enjoys helping others	Answers, assists, complies, conforms, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes
Demonstrates belief in the democratic process Appreciates good literature (art, music) Appreciates the role of science (or other subject) in everyday life Shows concern for others' welfare Demonstrates problem-solving attitude	Completes, describes, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works

Appendix I (continued)

Recognizes the need for balance between freedom and responsibility in a democracy Recognizes the role of systematic planning in solving problems Accepts responsibility for his or her own behavior Understands and accepts his or her own strengths and limitations Formulates a life plan in harmony with abilities, interests, and beliefs	Adheres, alters, arranges, combines, completes, defends, explains, generalizes, modifies, identifies, integrates, orders, organizes, prepares, relates, synthesizes
Demonstrates self-reliance in working independently Cooperates in group activities Uses objective approach in problem solving Demonstrates industry, punctuality, and self-discipline	Acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, uses, verifies

*Adapted from Gronlund, op. cit., p. 23

Table III. Examples of General Instructional Objectives and Behavioral Terms for the Psychomotor Domain of the Taxonomy*

Instructional Objectives	Behavioral Terms for Stating Learning Outcomes
Writes smoothly and legibly Draws accurate reproduction of a picture, map, or object Sets up laboratory equipment quickly and correctly Types with speed and accuracy Operates a sewing machine skillfully Operates a power saw safely and skillfully Uses a tennis racket correctly Performs skillfully on the violin Performs a dance step correctly Demonstrates correct form in swimming Demonstrates skill in driving a car Creates new ways of performing (creative dance, etc.)	Assembles, builds, calibrates, cleans, composes, connects, constructs, corrects, creates, designs, dismantles, drills, fastens, fixes, follows, grinds, grips, hammers, heats, identifies, locates, makes, manipulates, mends, mixes, paints, sands, sharpens, sets, sews, sketches, starts, stirs, uses, weighs, wraps

*Adapted from Gronlund, op.cit., p. 24.

Appendix J
Objectives For The Cognitive, Affective And Psychomotor Domains

From Benjamin Bloom's Taxonomy

COGNITIVE DOMAIN

Knowledge	Given a list of countries, the student will identify five which are democracies.
Comprehension	Given a paragraph, the student will be able to state its main idea.
Application	Given knowledge of geometric formulas, the student will apply it to solving specific problems.
Analysis	Given a historical selection, the student will detect the author's point of view.
Synthesis	Given information about myths and their purposes, the student will create a myth.
Evaluation	Given the components of a particular career, the student will evaluate accerding to predetermined criteria how well suited he/she would be for this career.

AFFECTIVE DOMAIN

Receiving	The student is willing to listen to altemative theories and beliefs regarding a particular subject.
Responding	The student responds to drama presentations by displaying an appropriate emotional response.
Valuing	The student displays a value for higher mathematics by voluntarily studying additional advance books.
Organization	From taking part in public performances of the band or orchestra, the student organizes her/his after school hours to include practicing at home.
Characterization	As years pass and new information is discovered, or new theories are developed, relating to a particular subject, the student is able to fit them into his/her belief system.

Appendix J (continued)

PSYCHOMOTOR DOMAIN

Imitation	After watching the teacher demonstrate how to copy letters from charts on cursive writing, the student imitates the same movements in making the letters of the alphabet.
Manipulation	Using the charts only for occasional reference, the student experiments and makes the letters from memory with some errors.
Precision	The student makes the letters without using the chart with no errors and can put them together into words.
Articulation	The student begins to write making letters her/his own way without losing their identity so that his/her own writing is characteristic of himself/herself.
Naturalization	The student writes while thinking more about what she/he is saying than how the letters are made and the letters remain legible.

Appendix K
Curriculum Materials Evaluation Checklist

This checklist is one format that can be used by a curriculum committee to analyze the significant characteristics of materials.

Name of Analyst _____ Date _____

Title of Material _____

Publisher _____ Grade Level _____

Copyright _____ New _____ Revision _____ Cost _____

	Excel.	Good	Fair	Poor	
SUITABILITY					**COMMENTS**
a. Conceptual level					
b. Readability level					
CONTENT					
a. Content matches curriculum objectives					
b. Content appropriate for students					
c. Format and organization of content					
d. Topics covered in sufficient depth					
e. Content based on appropriate disciplines					
STRATEGIES					
a. Emphasis on critical thinking and problem-solving					
b. Emphasis on concept mastery					
c. Emphasis on student involvement					

Appendix K (continued)

	Excel.	Good	Fair	Poor	
STRATEGIES (continued)					**COMMENTS**
d. Emphasis on developing independent thought					
e. Develops sense of responsibility for learning					
f. Incorporates evaluation alternatives					
CHARACTERISTICS					
a. Table of contents and index					
b. Glossary and definition of terms					
c. Treatment of minorities					
d. Lack of sexual stereotyping					
e. Size of print					
f. Physical features					
g. Number and clarity of charts, maps, diagrams					
h. Number and clarity of illustrations					
SUPPORT MATERIALS					
a. Teacher's guide					
b. Workbooks or masters					
c. Audiovisual components					
d. Test package					
e. Other:					
OVERALL RATING					

ADDITIONAL COMMENTS:

OUTSTANDING CHARACTERISTICS: _____

_____

_____

CHIEF DEFICIENCIES: _____

_____

_____

RECOMMEND FOR PURCHASE: YES _____ NO _____

Appendix L
Media Evaluation Checklist*

Title _____ Publisher _____

Publication Date _____ Running time _____ Cost _____

Format (circle one) Filmstrip Sound Filmstrip 8mm Film Loop
Videotape Videodisc Audiotape
Computer program Other _____

I would recommend this for use in _____ _____ at _____
subject area grade level

	Excel.	Good	Fair	Poor	
CURRICULUM					**ADDITIONAL COMMENTS**
a. Consistent with curriculum					
b. Consistent with instructional objectives					
c. Consistent with learners' ability levels					
d. Adaptable to various learning situations					
CONTENT					
a. Inclusion of appropriate content					
b. Accuracy of content					
c. Freedom from bias and prejudice					
TECHNICAL QUALITY					
a. Sound quality					
b. Visual quality					
SUPPLEMENTARY MATERIALS					
a. Adequate teacher's guides and supplemental information					
SUMMARY					
a. Overall evaluation					

b. Would you recommend for purchase? _____ Yes _____ No

*Adapted from checklist by Media Services Dept., West Hartford Public Schools

Appendix M
Sample Formats

PAGE FROM A CURRICULUM GUIDE

Level: UPPER ELEMENTARY Unit: United States, Early 1800s

Subject Area: Social Studies
Course: American History Topic: Westward Movement

Purposes or Goals	Learning Objectives	Background Information
1. To examine the migration to the West in the early 1800s. 2. To develop an appreciation for the determination, hardships, and sacrifices of the pioneers.	1. List four reasons why people moved West, and for each reason give at least two examples. *Justification:* There are reasons for things men do. The reasons why some Americans decided to move to the West marked the beginning of this part of our history. 2. On a U.S. map, draw the four major trails to the West. Label at least five geographic points, including the start, finish, and three stopping places along the way for each route. *Justification:* The opening of the West started with travel over these trails. You should become familiar with them as the basis for the other objectives of this unit. 3. In a report of 200 words or less, describe the preparation, methods of travel, and procedures followed enroute West. Include at least six points of evidence learned from your reading, visual materials, and discussion in class. *Justification:* Travel in the early 1800s was much different than it is today. You will understand and appreciate some of the problems and hardships faced by the pioneers if you know about their methods of travel. 4. After viewing an educational film in class, list the dangers and hardships that were encountered by the pioneers. Select three activities or events that were correctly shown and three that were not correct. *Justification:* Many commercial materials do not treat historical events with complete accuracy. Your study in this unit should make you aware that some things are correctly portrayed and that others are really play acting.	A. Personal reasons why people moved West. 1. Restlessness: a desire for a new start. 2. Feeling of freedom in the wide open spaces. 3. Hope of making a quick fortune. 4. Availability of land. B. Routes to the West 1. Santa Fe Trail: Independence, Mo. to Santa Fe, N.M. 2. Oregon Trail: Independence, Mo. to Columbia River through Nebraska, Wyoming, Idaho and Oregon. 3. Mormon Trail: Branched from Oregon Trail to Great Salt Lake, Utah. 4. California Trail: Branched from Oregon Trail to Fort Hall, through Nevada to central California. C. Overland transportation to the West by wagon train. 1. Twenty-five wagons made up a "freight train" 2. Each wagon was 17' long, 6' deep, and carried 5,000 to 7,000 pounds. 3. Costs: wagons, $800; mules, $50 a pair; harness, $300; total for 10-mule team outfit, $1,500 to $2,000. 4. Personnel; captain, assistant (wagon master), guide and hunter (scout), wagon drivers (mule skinners), advance and rear guards, stock herder, cook. D. Dangers and problems on trail. 1. Sickness due to limited diet. 2. Breakdown of wagons in rough terrain. 3. Extremes of heat and cold. 4. Continual back-breaking toil.

From *Instructional Design* by Jerrold D. Kemp, Fearon Publishers

Activities	Evaluation
This topic is developed for a class of 28 students in a regular classroom environment. It is based on the use of commercial materials, with some adaptations. Because of the wide IQ and reading-level ranges, a variety of reading and visual materials on various levels are available for individual selection. *Teacher Activities* 1. Introduce a videotape presentation that illustrates why people moved West, how they traveled and the trails they followed. 2. Meet with chairmen of discussion groups to plan activities. Circulate among the groups, but allow students to work by themselves. 3. Conduct class as summary reports are given. 4. Help individual students select materials. 5. Divide class into teams for some competition. Introduce game. *Student Activities* 1. View television program, then complete worksheet that reviews main points. 2. Re-read pre-test story. Read second story on list. Add to answers on work sheet and prepare for discussion. 3. Participate in assigned discussion group. Review what you learned from the television program and your reading. 4. Committee of two from each group makes notes for report to entire class. Prepare simple transparencies for report. 5. Each student selects a filmstrip on pioneer trails and problems encountered by the travelers. Complete exercise sheet as filmstrip is viewed. 6. Teams compete in instructional game in which players move counters on a game board according to a roll of dice and selection of cards with question and instructions. Game is on establishing routes to the West and making decisions concerning dangers and hardships encountered on the trails.	1. List four reasons why people moved to the West in the early 1800s. For each reason give two examples that you learned during your study. 2. On a U.S. map, draw the four trails to the West. Label the starting places and finishing points of each trail. Mark important places along each trail. 3. Write a two-page report on the pioneers' main method of travel. 4. Watch the motion picture *Wagon Train to the West*. It will be shown to you twice. Then make two lists. First, list at least three things that you think are shown correctly in the film. Then list at least three things that were not historically correct.

Appendix M (continued)

SAMPLE FORMAT

Received from: Marilyn Winters, Director of Instruction for Las Virgenes Unified School District, Westlake Village, California.

PROGRAM OR DISCIPLINE Health

UNIT OR CONTENT AREA Use and Misuse of Substances

UNIT GOALS OR CONTENT AREA GOALS

1. Develop knowledge, understanding and awareness about the use and misuse of substances.
2. Develop decision making and valuing skills about the use and misuse of substances.
3. Demonstrate responsible behavior in using various chemical substances and appropriate alternatives.

MAIN IDEA OR CONCEPT: Use of Substances—Many substances are beneficial to humanity.

Objectives	Learning Experiences	Resources	Evaluation Experiences
Be sure to include: • Cognitive • Affective • Psychomotor *Remember* • Philosophy • Psychology • Attainability • Feasibility • Significance	*Remember:* • Matching • Positive experiences • Appropriate • Multiple objectives • Efficient • Peak experiences • Sequence *Star (*) peak experiences*	*Remember:* • For students and teachers • Imagininative • Evaluate before using	*Remember:* • Observe the learner • Observe the product • Self-reports • Interviews • Written records

Notes to the teacher:

Appendix N
Checklist On Meeting Students' Special Needs

This checklist can be used to evaluate the adjustments that are being made in programs to compensate for students' special needs. For each child or group, a check is made where applicable.

DIAGNOSIS. Information has been collected about:	
Interests	Language Skills
Capabilities	Achievement
Reading Levels	Problems
Other	
SUBGROUPS. The following subgroups are used in class.	
Interest groups	Reading groups
Committees	Learning Centers
Instructional groups	Activity groups
Paired learning	Interviewing groups
METHODS AND ACTIVITIES. The following are used:	
Individual	Inquiry lessons
Small group	Expository lessons
Whole class	Homework
Varied directions for subgroups	Different questions for subgroups
Different standards for individuals	Different explanations for subgroups
Varied assignments for individuals or groups	Varied assessment of outcomes
MATERIALS. The following adjustments have been made:	
Reading materials on various levels	Rewritten materials
Study guides	Reading lists

Appendix N (continued)

Media materials for individuals and groups	Library resources
Practice materials	Artifact kits
Community resources	Learning centers
Taped materials	Pictures
INDEPENDENT STUDY. The following activities have been adjusted:	
Topics to investigate	People to interview
Sources of data	Type of report
Presentation form	Depth and breadth
Additional assistance	Other:
INDIVIDUAL TUTORIAL. Assistance is provided by:	
Teacher	Parent
Teacher aide	Another pupil
Volunteer	Programmed materials
Computer	Other:
SPECIAL INSTRUCTION. Specific provision is made for:	
Remedial	Team teaching
Resource teacher	Laboratory
Differentiated staffing	Divided day
STANDARDS AND EVALUATION. Adjustments have been made in:	
Quantitative expectations	Concept development
Qualitative expectations	Information outcomes
Uses of inquiry processes	Uses of maps, reading and other skills
Vocabulary development	Main ideas
Evaluative charts	Expression of feelings
Testing	Self-evaluation

Appendix O
Selected Sources

(Reprinted from *Preparing Your Curriculum Guide*, by Marilyn Winters
Association for Supervision and Curriculum Development,
225 North Washington Street, Alexandria, VA 22314)

Curriculum Guides

- *Curriculum Library.* Pitman Learning, Inc.
  6 Davis Drive
  Belmont, CA 94002

- *Curriculum Materials.* (Annual directory of curriculum guides displayed at the ASCD Annual Conference.)
  225 North Washington Street
  Alexandria, VA 22314

Federal Research and Development Products

- Council for Educational Development and Research (CEDAR)
  1518 K Street, NW, Suite 206
  Washington, DC 20005

- National Diffusion Network
  (Contact your state facilitator through your state department of education.)

Media and Materials

- Educational Products Information Exchange Institute (EPIE)
  475 Riverside Drive
  New York, NY 10027

- National Information Center for Educational Media (NICEM)
  University of Southern California
  University Park
  Los Angeles, CA 90007

Appendix O (continued)

Objectives and Evaluation

- Clearinghouse on Applied Performance Testing
  Northwest Regional Educational Laboratory
  710 SW Second Avenue
  Portland, OR 97240

- Educational Testing Service
  Princeton, NJ 08541

- Instructional Objectives Exchange (IOX)—UCLA
  Center for the Study of Evaluation
  UCLA Graduate School of Education
  405 Hilgard Avenue
  Los Angeles, CA 90024

- National Assessment of Educational Progress
  Suite 700, 1860 Lincoln Street
  Denver, CO 80295

Appendix P
Regional Educational Service Centers

Area Cooperative Education Services (ACES)
800 Dixwell Avenue
New Haven, CT 06511

Capitol Regional Education Council (CREC)
212 King Philip Drive
West Hartford, CT 06117

Cooperative Educational Services (CES)
11 Allen Road
Norwalk, CT 06852

Eastern Connecticut Regional Educational Service Center (EASTCONN)
R.R. 2
Willimantic, CT 06226

Long-Range Educational Assistance for Regional Needs (LEARN)
P.O. Box 220
East Lyme, CT 06333

Regional Educational Services Concept through United Effort (RESCUE)
R.R. 2, Goshen Road
Litchfield, CT 06759

Footnotes

1. *Needs Assessment: A Focus for Curriculum Development*, available from the Association for Supervision and Curriculum Development, 225 North Washington Street, Alexandria, VA 22314.

2. This section provides guidance to school districts in moving from district-wide goals to educational objectives. It replaces the proposed Volume 3 of the 1980 PERM Handbook series which was to be entitled *Developing and Establishing Local School District Student Objectives.*

3. R.H. Davé, National Institute of Education, New Delhi, India, quoted in *Developing and Writing Performance Objectives* (Tucson, AZ: Educational Innovators Press, 1971), p. 4.

4. Susan Loucks and Harold Pratt, "A Concerns-Based Approach to Curriculum Change," *Educational Leadership* (Alexandria, VA: Association for Supervision and Curriculum Development, December 1979), pp. 212–215.

5. E. Paul Torrance, *Rewarding Creative Behavior* (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1965).

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